Hagler/07/08/91

Bay/Delta Documents - FOIA List for June 12, 1991 Request

NOTE: These items have been released in their entirety. See additional listing of withheld documents or redactions

Letter of May 8, 1990, from J. Flynn of Southern California Water Committee to W. Reilly, EPA

Notice of Intent to Sue dated July 31, 1990, from SCLDF to W. Reilly, EPA

Letter of August 20, 1990, from H. Seraydarian, EPA, to D. Maughan, SWRCB

Letter of September 18, 1990 from S. Somach, McDonough, Holland and Allen, to W. Reilly, EPA

Letter of October 10, 1990, from D. McGovern, EPA, to Glen Reid

Letter of October 17, 1990, from T. Graff, EDF, to D. McGovern, EPA

Letter of November 1, 1990, from J. McDaniel, DWR, to H. Seraydarian, EPA

Memo of November 8, 1990, from Pat Thorne, EPA, to Laura Loux, EPA

Letter of November 30, 1990, from Bill Davoren, Bay Institute, to W. Reilly, EPA

Letter of December 13, 1990, from L. Krieger, MWD, to D. McGovern, EPA

Letter of March 8, 1991, from H. Seraydarian, EPA, to D. Maughan, SWRCB

EPA Comments dated March 26, 1991, to SWRCB

Speech dated April 3, 1991 by J. Wise, EPA to California Urban Water Agencies

Letter of April 11, 1991, from C. Warren, State Lands Commission, to D. Maughan, SWRCB

THH FOIA File (Primary)

Memo dated April 12, 1991 from D. McGovern, EPA, to W. Reilly, EPA

Memo dated April 26, 1991 from J. Gaston, CH2MHill, to P. Wright, et. al.

Letter of May 29, 1991, from W. Pettit, SWRCB, to D. McGovern, SWRCB

Letter of June 7 , 1991, from S. Volker, SCLDF, to D. McGovern, EPA

June 12, 1991 FOIA Request

I. The following documents have been withheld in their entirety for the stated reasons:

1. Internal Memorandum from G. Cooper to D. McGovern dated September 4, 1990 (3 pages)

   This memorandum from the Office of Regional Counsel discusses the legal issues involved in the SCLDF Notice of Intent to Sue. It is being withheld pursuant to Exemption 5 of FOIA as a privileged attorney-client communication.

2. Internal Memorandum Draft on Leegal Options In Response to Notice of Intent to Sue (Undated, approx. 09/90) (6 pages)

   This memorandum from the Office of Regional Counsel discusses the legal issues involved in the SCLDF Notice of Intent to Sue. It is being withheld pursuant to Exemption 5 of FOIA as a privileged attorney-client communication.

3. Internal Memorandum Draft from Nancy J. Marvel to Daniel W. McGovern on Legal Issues Related to Bay/Delta Water Quality Standards (Undated, approx. 10/90) (29 pages)

   This memorandum from the Office of Regional Counsel discusses the legal issues involved in the SCLDF Notice of Intent to Sue. It is being withheld pursuant to Exemption 5 of FOIA as a privileged attorney-client communication.

4. Internal Note from R. Wyland to Lajuana Wilcher on EPA Strategy for Bay/Delta issues (Dated 12/05/90) (1 page)

   This memorandum discusses EPA's developing strategy for dealing with the issues raised in the Bay/Delta Notice of Intent to Sue. It is being withheld pursuant to Exemption 5 of FOIA as a privileged predecisional deliberative communication.

II. The following documents have been withheld in part for the stated reasons:

1. Internal Briefing Package on San Francisco Bay/Delta dated September 25, 1990 (27 pages)

This Briefing Package describes the issues involved in the Bay/Delta controversy, and considers options for EPA in fulfilling its obligations under the Clean Water Act. The last 8 pages of this Package are being withheld pursuant to Exemption 5 of FOIA as a privileged predecisional deliberative communication.

TOM HAGLER
ORC

SAN FRANCISCO BAY/DELTA BRIEFING

FOIA File (Indicating Redact)

25 SEPTEMBER 1990

SAN FRANCISCO BAY/DELTA WATER QUALITY AND QUANTITY

I. ISSUES

II. BACKGROUND
- A. California Water
- B. Importance of the Estuary
- C. Environmental Problem
- D. Major Players
- E. Water Quality Standards

III. CHRONOLOGY & RECENT EVENTS

IV. LEGAL AUTHORITY

V. OTHER FACTORS
- A. National Implications
- B. Water Supply and Economic Impacts
- C. Interests of Major Parties

VI. STRATEGY

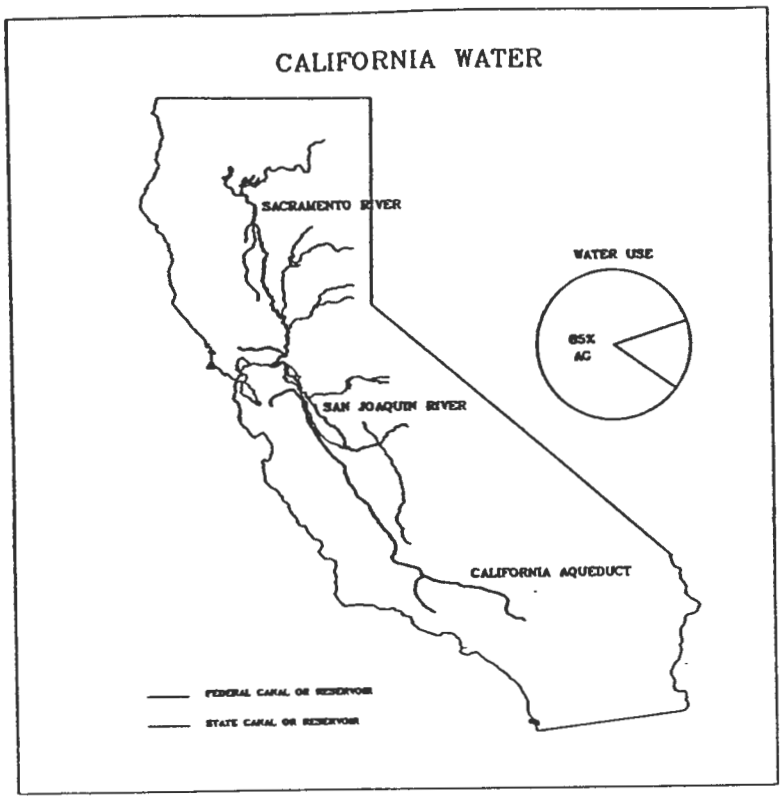
VII. LEGAL DISCUSSION

ISSUES

- **DISAPPROVAL OF STATE WATER QUALITY STANDARDS?**
- **FEDERAL PROMULGATION AFFECTING WATER QUANTITY?**
- **EPA ROLE IN CALIFORNIA WATER?**

› We received a NOI on July 31 from a coalition of environmental groups led by the Sierra Club Legal Defense Fund. The other groups include NRDC, the Audubon Society, and the Pacific Coast Federation of Fisheries Associations.

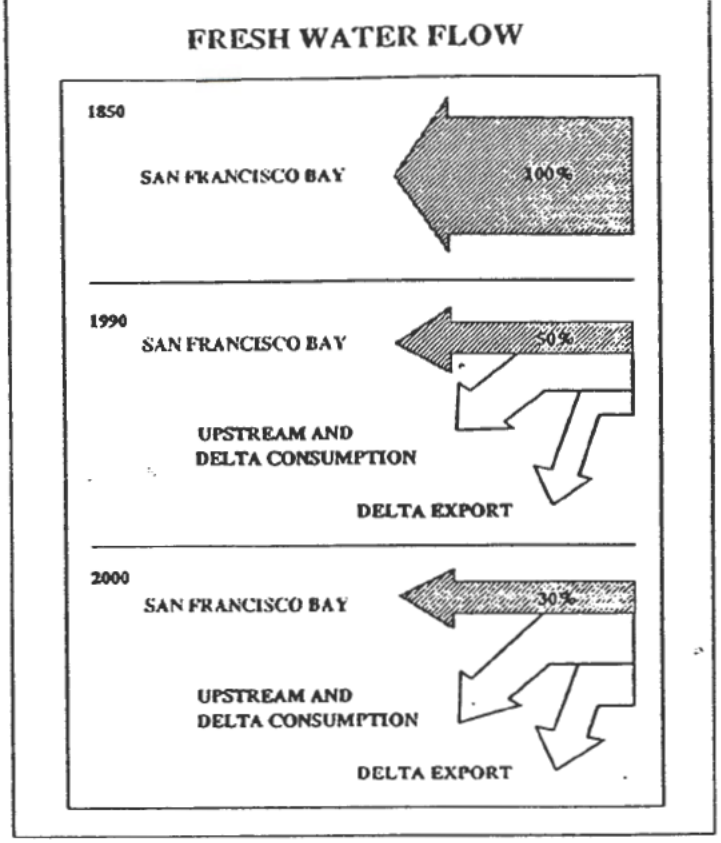
o The environmental groups and fisheries associations are becoming increasing alarmed by the dramatic decline of the major fisheries in the Bay/Delta estuary, and are frustrated by the state's failure to revise its water quality standards to protect them. They are now turning to EPA to exercise its authority under the Clean Water Act to set federal standards when states fail to act.



- This graphic is a simplified picture of California's major rivers and water supply systems.
- 75% of the state's rainfall is in the northern half of the state, but 75% of the state's water is consumed in the southern half.
- To make this possible, federal, state, and local governments built a complex system of dams, reservoirs, and canals.
- The 2 largest systems are shown here: the federal Central Valley Project, which was built in the 30's, and the State Water Project, which came on line in the 60's.
- Where does most of the water go? 85% of the state's developed water supplies is used by agriculture.

IMPORTANCE OF THE ESTUARY

- CAPTURES 47% OF STATE'S RUNOFF, AND PROVIDES 2/3 OF WATER USED.
- SUPPLIES 40% OF STATE'S DRINKING WATER SUPPLIES.
- PROVIDES IRRIGATION WATER FOR 200 CROPS, INCLUDING 45% OF NATION'S FRUITS AND VEGETABLES.
- SUPPORTS OVER 150 SPECIES OF FISH, AND A LARGE COMMERCIAL AND RECREATIONAL FISHERY FOR SALMON, STRIPED BASS, STEELHEAD TROUT, SHAD STURGEON, HERRING, AND ANCHOVIES.
- CONTAINS LARGEST WETLAND HABITAT IN WESTERN U.S.

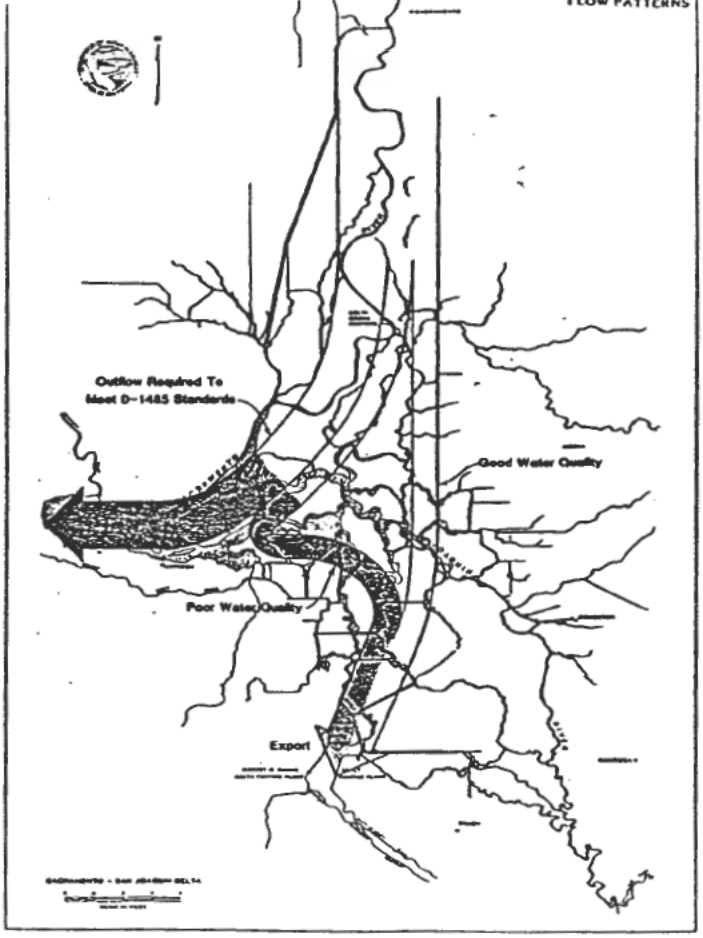


- To support all of these uses, vast quantities of water that would otherwise flow into the Bay are diverted.

- Historically, all the water from the Sacramento and San Joaquin River Basins flowed through the Bay.

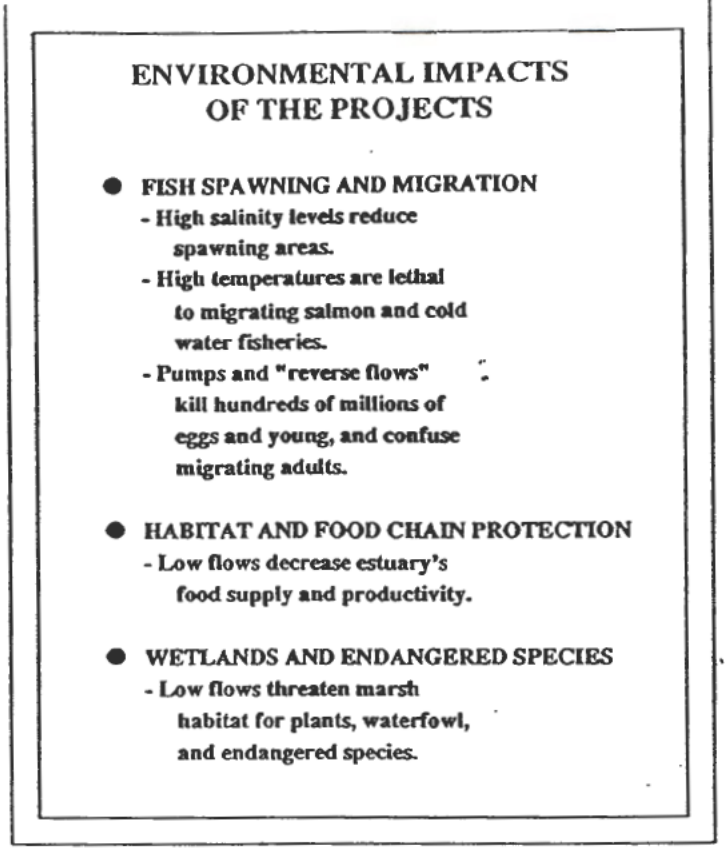
- Today, in an average year, about 50% of the flow is diverted upstream or diverted south of the Delta. In the spring months that are most critical to the fisheries, as much as 85% of the historic flows are diverted.

- In the next decade, if current plans for additional projects are completed, average flows would drop to only 30% of historic levels.



- These diversions have had a significant impact on the flow regime of the estuary.

- As the overlay shows, a significant portion of the freshwater that would otherwise flow to the Bay is exported south through the state and federal pumping plants. These pumps are so powerful that they create "reverse flows" throughout the southern Delta. In drier years, nearly all the flow (and aquatic life) of the San Joaquin River is drawn into the pumps.



- The altered flow regime has made life difficult for the aquatic resources that depend on the natural cycle of flows through the estuary.

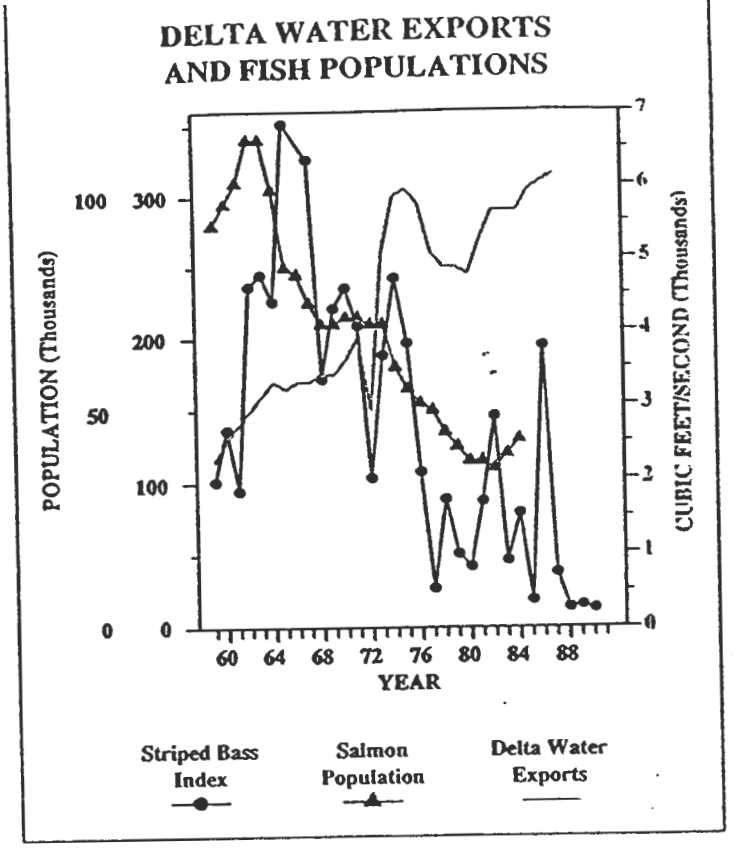
- High salinity levels reduce the spawning areas for striped bass.

- High temperature levels are lethal to migrating salmon and other cold water fisheries.

- The pumps and "reverse flows" kill hundreds of millions of eggs and young fish that migrating out to the Bay, and confuse adult fish trying to make it back to their home streams. The fisheries agenciestimate that up to 96% of the salmon runs on the San Joaquin River are destroyed each year at the pumps. They also know that millions of eggs and young from the Sacramento River are drawn into the interior Delta, where water quality conditions are poor because of agricultural runoff, and where they become vulnerable to the pumps.

- Diversions have also shifted the location of the mixing zone between fresh and salt water. This area, also known as the entrapment zone, is a highly productive area that serves as the basis of the food chain upon which the estuary's shrimp, clams, fish, and waterfowl depend. When flows are high, the zone is in the much larger and shallower area of Suisun Marsh; when flows are low, it moves upstream and is much smaller.

- Flows are also important to maintain the brackish wetlands of the estuary. 95% of the state's remaining wetlands are in Suisun Marsh. It needs a constant supply of freshwater to remain brackish and to support its waterfowl and wildlife, which include several endangered species.



- The most dramatic impact of the altered flow regime has been on the anadromous fisheries of the estuary.

- This graphic shows the level of water exports from the Delta on the right, and population levels of salmon and striped bass on the left.

- As exports have risen, populations of the Delta fisheries have declined dramatically. Natural salmon populations have dropped 75% from historic levels, and striped bass populations have dropped to all-time lows in the last three years.

- The fisheries agencies believe that increased exports and the altered flow regime are the principal cause of these declines. Their studies have shown that survival levels of both species are highly correlated with freshwater flows and diversions.

- They are also concerned that the anadromous fisheries are an indicator of the health of other, less studied aquatic life, and the entire estuarine system. Populations of several fish species and the smaller organisms that make up their food supplies are in decline. The entire food chain depends on the natural cycles of salinity and flows in the estuary.

MAJOR PLAYERS

REGULATORY AGENCIES	ROLES
STATE WATER RESOURCES CONTROL BOARD (SWRCB).	SETS WQ STANDARDS. ALLOCATES WATER RIGHTS.
EPA.	APPROVES WQ STANDARDS. COMMENTS ON EISs. COORDINATES SF ESTUARY PROJECT.
WATER SUPPLY AGENCIES	
DEPT OF WATER RESOURCES (DWR). BUREAU OF RECLAMATION (USBR).	OPERATE STATE AND FEDERAL WATER PROJECTS.
RESOURCE AGENCIES	
DEPT FISH & GAME (DFG). FISH AND WILDLIFE SERVICE (USFWS). NAT MARINE FISHERIES SERVICE (NMFS).	MANAGE FISH AND WILDLIFE. CONSULT ON ENDANGERED SPECIES, EISs.
INTEREST GROUPS	**GOALS**
AGRICULTURAL GROUPS.	KEEP CURRENT SUPPLIES.
URBAN INTERESTS.	MORE HIGH QUALITY WATER.
ENVIRONMENTAL GROUPS.	MORE WATER TO THE BAY.

- The **State Water Resources Control Board** plays the central role. California is one of the few states in which the same agency sets water quality standards and allocates water rights.

- **EPA** has approval authority over the state's water quality standards, comments on EISs, and coordinates the San Francisco Estuar Project.

- The state **Department of Water Resources** (DWR) and the **Bureau of Reclamation** are the principal water supply agencies. DWR operate the State Water Project (SWP), and the Bureau operates the federa Central Valley Project (CVP).

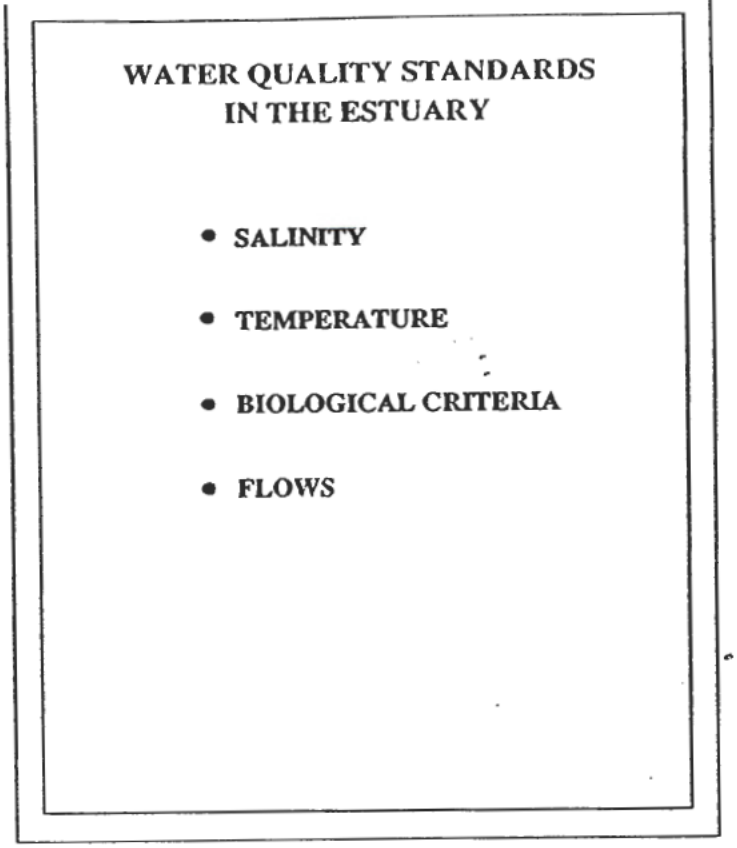
- The **State Department of Fish and Game, the U.S. Fish and Wildlife Service** and the **National Marine Fisheries Service** are the key resource agencies, and the Board staff rely heavily on their analyses and recommendations in preparing its plans.

- The key interest groups are agriculture, urban, and environmental

  - Agricultural interests are fighting to keep their current supplies,

  - Environmental groups and fisheries associations want to significantly increase the amount of freshwater that flows through the Bay, and

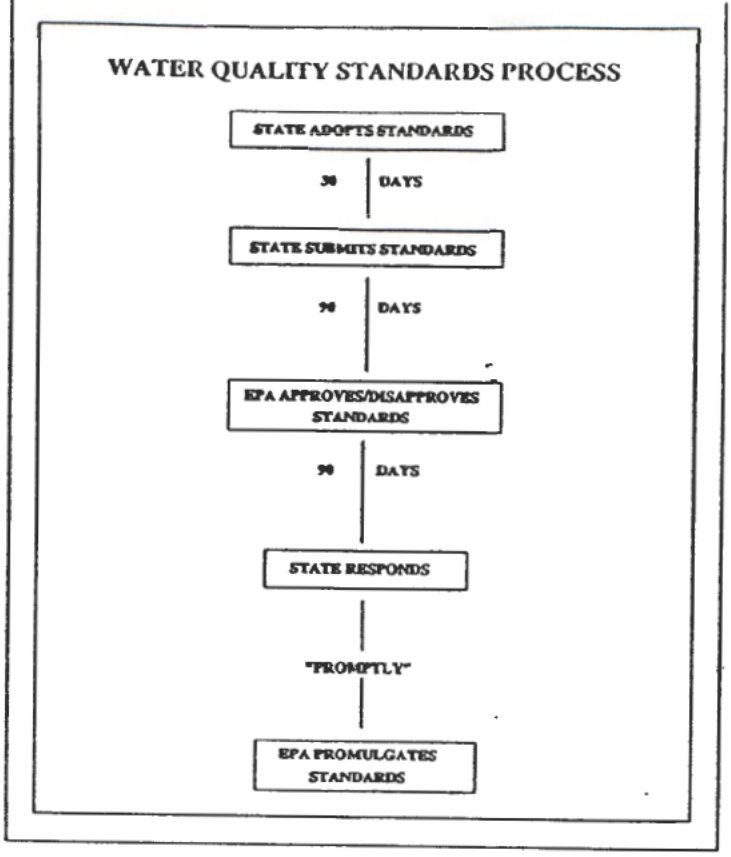
  - Urban interests are demanding more water to meet the growing demand for supplies in southern California. They are also concerned about the potential costs of treating their supplies to control disinfectant by-products, particularly trihalomethanes THMs. THMs are formed when organic materials - primarily from agricultural runoff - mixes with chlorine disinfectants. EPA i likely to lower the drinking water standard for THMs in the nex few years, and the water suppliers are concerned that treatment of poor quality Delta water to meet the standards will be very expensive. They favor construction of new facilities to draw their supplies upstream of the Delta.



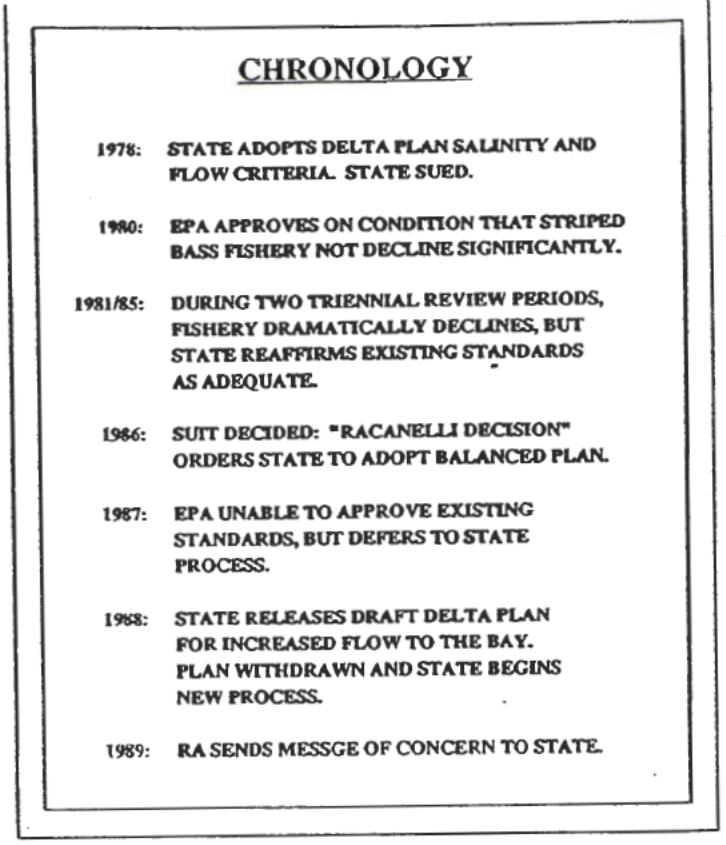
- The State Board, by virtue of its dual authority over water quality and water rights decisions, has been in a unique position to develop an integrated resource management plan to protect aquatic life and other uses.

- Typically, states adopt criteria for traditional parameters, including temperature and salinity, and some are now beginning to adopt biological criteria that protect the health and diversity of aquatic communities.

- In 1978, California took advantage of its dual authorities to establish a adopt a comprehensive set of salinity and minimum flow standards to maintain the fisheries at recent historical levels. The Board chose striped bass as the indicator species of the health of the estuary, and made a commitment to maintain the fisheries at population levels that would have existed in the absence of the state and federal projects.



- States have primary responsibility for setting standards.
- If they fail to meet Clean Water Act requirements, EPA can disapprove and promulgate federal standards.
- This is a last resort, however; states always have the opportunity to correct their deficiencies to avoid a federal promulgation.
- EPA has promulgated standards only 10 times since 1974, and in 7 cases they were withdrawn after the states acted.
- Now I would like to move to a chronology of California's attempts to get standards for the Bay/Delta estuary.



Key additional points:

- 1988: The Board's Draft Plan was sound scientifically, but was withdrawn after urban and agricultural interests strongly objected to the Plan's proposed California Water Ethic, which would have required significant improvements in water conservation, reclamation, and irrigation efficiency to provide more water to the Bay.

- 1989 RA message: EPA prefers to continue deferring to the state, but may have to intervene if 1) the state takes too long to revise the standards; 2) the environmental groups sue to force us to act, or 3) the fisheries are in danger of collapsing.

RECENT EVENTS

JANUARY 1990:	STATE RELEASES NEW DRAFT PLAN WITH ONLY SALINITY AND TEMPERATURE CRITERIA. PLAN ACKNOWLEDGES THAT REVISED FLOW CRITERIA ARE NEEDED, BUT POSTPONES ACTION UNTIL 1993.
FEBRUARY 1990:	EPA EXPRESSES CONCERN THAT SALINITY AND TEMPERATURE CRITERIA ALONE WILL NOT PROTECT FISHERY.
JUNE 1990:	STATE RELEASES SECOND DRAFT PLAN WITH NO SIGNIFICANT CHANGES.
JULY 1990:	ENVIRONMENTAL GROUPS FILE 60-DAY NOTICE.
AUGUST 1990:	EPA COMMENTS REITERATE PREVIOUS CONCERNS.
DECEMBER 1990:	STATE TO ADOPT FINAL PLAN AND SUBMIT TO EPA.
1990 - 1993:	STATE EIR AND WATER RIGHTS HEARINGS.

Key additional points:

- Jan 1990: The state's new position is that it must clearly separate its water quality and water rights decisions, and that EPA has no authority over any flow-based standards.

- 1990 - 1993: The state's hearings on the need for additional flows to protect habitat conditions in the estuary are likely to take several years, and the state does not intend to submit the results to EPA.

BAY/DELTA PLAN COMPARISONS

STANDARD	ORIGINAL 1978 PLAN	WITHDRAWN 1988 PLAN	1990 WATER QUALITY PLAN	1993?
SALINITY (BASS)	X	X	X	
FLOW (BASS)	X	X		?
FLOW (SALMON)	X	X		?
DIVERSION LIMITS	X	X		?
TEMPERATURE (SALMON)			X	

- This chart summarizes the same chronology, but emphasizes the content of the various state water quality plans for the estuary.
- The original 1978 Plan included salinity criteria to protect spawning conditions for striped bass, flow criteria to improve striped bass and salmon habitat and migration conditions, and diversion limits on the state and federal projects.
- The 1988 Plan that was withdrawn strengthened the original standards, and would have significantly increased the level of freshwater flows to the Bay in the spring.
- The Draft 1990 Plan retains only the salinity criteria from the original plan, and adds a temperature standard for salmon. Neither are set at levels recommended by the fisheries agencies.
- The Board will consider whether revised flow standards are needed in the hearings scheduled for the next few years, but we don't have much confidence that the Board will be any more successful than on its previous attempts.

LEGAL AUTHORITY

- **CWA SECTION 303(c)(4):**

  DISCRETIONARY PROMULGATION BY THE ADMINISTRATOR

- **CWA SECTION 303(c)(3):**

  MANDATORY REVIEW BY THE REGIONAL ADMINISTRATOR

REQUIREMENTS FOR APPROVABLE STANDARDS

- CRITERIA MUST BE SUFFICIENT TO PROTECT THE MOST SENSITIVE USE.
- CRITERIA MUST BE BASED ON SOUND SCIENTIFIC RATIONALE.
- STATE CANNOT "DOWNGRADE" AN "EXISTING USE" (ONE EXISTING AT ANY TIME ON OR AFTER 1975).
- STATE MUST HAVE AN "ANTI-DEGRADATION POLICY" WHICH MAINTAINS AND PROTECTS EXISTING INSTREAM WATER USES AND THE CORRESPONDING LEVEL OF WATER QUALITY.

CONFLICT BETWEEN STATE AND FEDERAL LAW

FEDERAL	STATE
CRITERIA MUST PROTECT MOST SENSITIVE USE	"REASONABLE" PROTECTION FOR ALL USES
SCIENTIFIC BASIS FOR CRITERIA REQUIRED	ECONOMICS CAN BE CONSIDERED ESTABLISHING CRITERIA
"EXISTING USES" MUST BE PROTECTED	"REASONABLE" PROTECTION FOR ALL USES

CLEAN WATER ACT
SECTION 101(g)

"It is the policy of Congress that the authority of each state to allocate quantities of water within its jurisdiction shall not be superceded, abrogated, or otherwise impaired by this chapter."

GENERAL COUNSEL'S OPINION INTERPRETING SECTION 101(g)

"EPA should therefore impose requirements which affect water usage only where they are clearly necessary to meet the Act's requirements."

ENVIRONMENTAL RESULTS

- **RESTORE FISHERIES**
- **PROTECT CRITICAL AQUATIC HABITATS IN THE BAY/DELTA WATERSHED**
- **MAINTAIN CHEMICAL, PHYSICAL, AND BIOLOGICAL INTEGRITY OF THE ESTUARY**

Redact

- Our most immediate concern is that several fish species in the estuary are on the verge of collapse. Unless EPA or the state acts soon to improve aquatic habitat conditions, the fisheries may never be able to recover to sustainable levels.

- We're also concerned about the health of other aquatic life and wetlands in an estuary of national and international significance. In the next triennium, the highest priority of the EPA's standards program is to reduce risks to critical ecological resources in high priority watersheds.

- Finally, we considered the primary goal of the Act: to restore the chemical, physical, and biological integrity of the nation's waters. Nationally EPA is urging states to adopt comprehensive sets of ecological indicators and criteria to protect the structure and function of aquatic communities. The state's 1991 Plan, by contrast, replaces an integrated plan with a limited set of chemical-specific standards that will not protect the aquatic resources of the estuary.

SOUTHERN CALIFORNIA WATER COMMITTEE, INC.

34 EXECUTIVE PARK • SUITE 200
IRVINE, CALIFORNIA 92714 • 714-261-7466

May 8, 1990

William K. Reilly
Administrator
Environmental Protection Agency
401 M Street, South West
Washington D.C. 20460

Dear Mr. Reilly,

The Southern California Water Committee is a public educational partnership dedicated to informing Southern Californians about our water needs and our state water resources. The SCWC is a unique coalition of diverse interests that have come together to address this important public policy issue. Representing business, government, agriculture, water agencies and the public sector, our mission is to raise awareness, reach consensus and find solutions.

At our March Quarterly Board Meeting, the Board of Trustees of the Southern California Water Committee adopted a resolution that calls upon the Environmental Protection Agency to consider the economic importance of a reliable water system in their decision making process. The EPA, through its permit process, has a great deal of influence in the reliability of California's water supply for municipal and reliable uses. Recently the EPA conducted a symposium on alternatives for water supply facilities. It was noted by one of our members that the discussion did not include consideration of the potential economic impact of an unreliable water supply.

As Chairman of the Southern California Water Committee, I urge you to examine the economic importance of a reliable system to meet water needs and establish a high degree of water supply reliability as a critical objective in the public interest in your decision-making process.

Sincerely yours,

John K. Flynn
Supervisor, County of Ventura
Chairman, SCWC

Attachment

cc: Dan McGovern, California Regional A
Board of Trustees

RESOLUTION OF THE SOUTHERN CALIFORNIA WATER COMMITTEE
ON WATER SUPPLY RELIABILITY

WHEREAS, Southern California has a population of over 15 million people;

WHEREAS, the population of Southern California is expected to grow in the future under regional growth management plans and the majority of that growth will result from a natural increase in the existing population;

WHEREAS, Southern California will soon surpass the metropolitan New York area as the number one manufacturing center in the United States and ranks as the seventh largest economy in the world;

WHEREAS, the regional economy of Southern California generates over $240 billion in gross regional product every year and provides almost six million jobs;

WHEREAS, all of the region's water sources are seriously threatened and the region has lost the rights to 650,000 acre-feet per year of dependable Colorado River water supplies; the City of Los Angeles is expected to lose up to 80,000 acre-feet per year of its water supplies from the Mono Basin; the State Water Project remains incomplete and during dry

periods can provide barely one-half of the firm yield for which contracts are held; and the regions groundwater basins are increasingly threatened with contamination;

WHEREAS, the region has a program to conjunctively manage its groundwater basins with its imported supplies to maximize the efficient use of its water supplies and it also has programs that emphasize pricing and seasonal storage to encourage conservation;

WHEREAS, Southern California is also a leader in the development of innovative water transfer programs, including a landmark agreement with the Imperial Irrigation District, legislation to line portions of the All-American Canal, and a precedent-setting water exchange agreement with the Arvin-Edison Water Storage District;

WHEREAS, Southern California is a leader in the development of a growing number of innovative and aggressive long-term conservation programs and waste water reclamation projects, which together are now saving 400,000 acre-feet of water annually;

WHEREAS, long-term conservation measures "harden demands" and make it more difficult to conserve under short-term supply deficiencies and therefore increase the economic impacts of water shortages;

WHEREAS, a reliable system for obtaining water supplies to meet reasonable demands is one of the most important components of the economic infrastructure in the arid western states;

WHEREAS, California has experienced water rationing in five of the last 13 years, and the degree of reliability of its water supply systems is dramatically below reliability levels recognized as necessary by regulations of other infrastructure industries, such as electricity and natural gas;

WHEREAS, water shortages impose a significant economic cost and a degradation of the quality of life on residential water users and can result in the loss of billions of dollars in income and thousands of jobs in the regional economy; and

WHEREAS, a continued lack of reliability in the water supply system may be perceived as an infrastructure failure and undermine confidence in the Southern California economy;

NOW THEREFORE BE IT RESOLVED, that the Southern California Water Committee urges the Environmental Protection Agency to examine the economic importance of a reliable system to meet water needs and establish a high degree of water supply reliability as a critical objective in the public interest in their decision-making process.

COPY

SIERRA CLUB LEGAL DEFENSE FUND, INC.

The Law Firm for the Environmental Movement

10.076.01

Sunrise, Mt. McKinley Ansel Adams

2044 Fillmore St. San Francisco, California 94115 (415) 567-6100 FAX (415) 567-7740

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

July 31, 1990

William K. Reilly
National Administrator
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Re: Sixty-day notice of intent to sue EPA Administrator under Section 505 of the Clean Water Act, 33 U.S.C. §1365, for failure to promulgate water quality standards to protect beneficial uses of the San Francisco Bay Delta

Dear Administrator Reilly:

This is a sixty-day notice, pursuant to the citizen suit provision of the Clean Water Act, 33 U.S.C. §1365(b)(1)(A) and the implementing regulation, 40 C.F.R. §135.2(b) of our intent to file suit against you for failure to enforce the Clean Water Act. The grounds for the suit are your continuing failure to promulgate specific water quality and quantity standards for the San Francisco Bay Delta, despite the acknowledged failure of the standards developed by the State of California Water Resources Control Board ("State Board") to protect the striped bass fishery resource. Unless you take action within the next sixty days to comply with sections 303(c)(3) and (4) of the Clean Water Act, we intend to file an enforcement action in federal district court to compel you either to take such action, or alternatively, to compel the State Board to adopt appropriate standards.

This notice is based on the following discussion of the pertinent facts and law.

I. THE STATE BOARD'S WATER QUALITY STANDARDS HAVE FAILED TO PROTECT THE STRIPED BASS

In 1978, the State Board adopted a Water Quality Control Plan for the Sacramento-San Joaquin Delta and Suisun Marsh ("1978 Plan") which established water quality standards for municipal and industrial, agricultural, and fish and wildlife beneficial uses in the Delta and Suisun Marsh. The 1978 Plan was designed to provide the same level of protection to the Bay ecosystem as would have existed without the Sate Water Project (SWP) and the Federal Central Valley Project (CVP). The key component for measuring ecosystem health in comparison to historical and "without project" levels of protection was the striped bass index ("SBI").

The State Board focused on striped bass protection because of the importance of the fishery and the relative abundance of information on the species. Even in its current diminished state, the striped bass fishery provides economic livelihood for thousands of people and recreation for hundreds of thousands more.[1] More importantly, however, the striped bass population also serves as "a surrogate for the biota of the entire Estuary," and thus has been used as an indicator species to measure the health of the entire Bay-Delta ecosystem.[2]

The 1978 Plan indicated that the proposed water quality standards would maintain an average SBI of 79, which would provide "without project" protection of the fishery until the historical SBI of 106 could be attained. The SBI is a measure of the relative abundance of young striped bass in the Bay-Delta Estuary. While the SBI does not translate directly to the absolute size of the striped bass population, it is a

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[1] California Department of Fish and Game, "Striped Bass Restoration and Management Plan for the Sacramento - San Joaquin Estuary, Phase I" ("Striped Bass Plan"), September 1989, iv.

[2] State Board, "Revised Draft Water Quality Control Plan for Salinity, San Francisco Bay/Sacramento-San Joaquin Delta Estuary," June 1990 ("Revised Draft Salinity Plan"), 7-22; 1978 Plan, VI-6 to VI-9.

"legitimate and relatively sensitive measure of the change in abundance between years."[3]

During the 1976-77 drought, the SBI declined precipitously and striped bass populations in the Bay-Delta Estuary have remained low since that time. The average SBI since the adoption of the 1978 Plan has been about 25. The 1988 SBI of 4.6 and the 1989 SBI of 5.1 were the lowest on record. The State Board has admitted the failure of the recent water quality plans to maintain a healthy striped bass population:

> The Delta Plan objectives have not maintained the SBI at the 'without project' level of 79, the expected level of protection under these objectives; nor have they stopped the decline which had begun to become evident even before the objectives were established.[4]

The decline in the striped bass population is mirrored in the declining fishery resources throughout the Bay-Delta Estuary. The total population of adult striped bass in the Bay-Delta is today only one-fourth to one-third of its population in the 1960's.[5] American shad and natural populations of Chinook salmon in the Bay-Delta have also declined dramatically from their historic levels. (Water Quality Assessment, April 4, 1990, A-11.) The native Delta smelt, a principal forage fish for the striped bass once abundant throughout the upper Estuary, has declined so severely that the California Department of Fish and Game ("DF&G") has recommended that it be listed by the State as an endangered species.[6] The Sacramento splittail has been recommended for study as a candidate species by the U.S. Fish and Wildlife Service ("F&WS").[7] Due to concerns over fish population declines, habitat impairment and toxic contamination of fish and waterfowl, the San Francisco Bay and the Central Valley Regional Water Quality Control Boards have

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[3] State Board,"Revised Draft Salinity Plan," 5-41.

[4] Id., 5-39.

[5] DF&G, "Striped Bass Plan," 9.

[6] DF&G, "A Status Review of the Delta Smelt in California," Candidate Species Status Report 90-2, August 1990.

[7] State Board, "Revised Draft Salinity Plan," 4-25.

determined "that the Bay Delta and the major tributaries that feed the Delta (the Sacramento River, the American River, and the San Joaquin River) do not fully support all of the beneficial uses of these waters" and have recommended federal listing of these waters as "impaired" under Sections 304(l), 303(d), and 319 of the Clean Water Act.[8]

II. EPA HAS DISAPPROVED THE 1978 PLAN WATER QUALITY STANDARDS

EPA has demonstrated a continuing concern about the striped bass standards since its original conditional approval of the 1978 Plan. EPA's approval of the 1978 Plan was dependent on the success of its water quality standards in protecting the striped bass population. It conditioned its approval on State Board compliance with EPA "interpretations" of the standards which committed the State to take immediate action if significant declines in the striped bass population occurred:

> If there is a measurable decrease in the Striped Bass Index (SBI) below that predicted, the SWRCB shall commence immediate actions to review and revise the Delta Plan standards such that "without project" levels of protection are attained. It is our understanding that an average SBI of 79 represents "without project" protection.

"EPA Interpretations of Water Quality Standards, Sacramento-San Joaquin Delta and Suisun Marsh, July, 1980," annexed as Exhibit 1 hereto, emphasis added.

Since that time, EPA has repeatedly expressed concern over the continued depression of the SBI. In its comments on the prehearing staff report for the second triennial review of the 1978 Plan, EPA noted that while there had been a "measurable decrease" in the SBI, "no revisions have been made to the Delta Plan to provide protection of the fish and wildlife." EPA concluded that "existing water quality standards do not fully protect the designated beneficial use." Letter from Regional Administrator Judith Ayres to Chairman of the State Board, Carole A. Onorato, dated December 6, 1984, annexed as Exhibit 2 hereto.

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[8] State Board, "1990 Water Quality Assessment," April 4, 1990, A-6.

The State Board completed its second triennial review of the 1978 Plan by adopting Resolution 85-4 in January 1985. The resolution was submitted to EPA for approval on June 26, 1985, and on September 18, 1985, EPA responded with a request that the State Board provide additional information to support its findings. Finally, on June 29, 1987, following the State Board's second triennial review, EPA Regional Administrator Judith Ayres notified Don Maughan, Chairman of the State Board, that EPA would not approve the striped bass survival standards or the relaxation provision of the striped bass spawning standards:

> EPA approves the water quality standards contained in the Delta Plan with the exception of the striped bass survival standards and the relaxation provision of the striped bass spawning standard. EPA can not approve these two standards as we believe the standards do not adequately protect the fishery resource.

Letter from Regional EPA Administrator Judith Ayers to State Board Chairman Don Maughan, dated June 29, 1987, annexed as Exhibit 3 hereto.

III. THE STATE HAS FAILED TO PROMULGATE STANDARDS WHICH WILL PROTECT THE STRIPED BASS

Despite EPA's disapproval of the striped bass standards, the State Board made no changes to the standards following EPA's second triennial review of the 1978 Plan. In October 1988, the State Board released its "Draft Water Quality Control Plan for Salinity" ("Draft Salinity Plan") which recommended a significant decrease in spring exports in order to meet flow requirements for the striped bass and other economically important fish species, including Chinook Salmon. Id. at 7-32. However, the State Board withdrew the Draft Salinity Plan in January 1989, at the end of the evidentiary phase, and on July 20, 1989, released its draft revised workplan, which eliminated consideration of flows and extended the deadlines for adoption of Bay-Delta Estuary standards.

The State Board withdrew the Draft Salinity Plan for political rather than scientific reasons. In fact, the Draft Salinity Plan's proposed flow standards were clearly essential to protection of the striped bass. The State Board, DF&G, and F&WS have identified delta water diversions and reduced delta outflows as the major causes of striped bass decline. During

the State Board's Bay-Delta hearings in 1987, both DF&G and F&WS recommended substantially increased outflows as the primary measure to insure immediate striped bass protection.[9] According to DF&G's "Striped Bass Plan," the water diversions "entrain and remove striped bass eggs, larvae, and juveniles from the Delta; reduce the young bass food supply; and disrupt bass migrations."[10] Reduced Delta outflows "make the lower San Joaquin River saltier than desirable for bass spawning; and they reduce the transport of bass eggs and larvae and thus, specially, restrict their nursery area."[11] DF&G has recommended that Delta outflows be increased in spring and early summer and that higher minimum outflows be maintained to improve striped bass survival.[12]

The State Board admitted in its original Draft Salinity Plan that the majority of the problems causing the striped bass decline were directly related to reduced Delta outflow and excessive exports, including the following: 1) a salinity and electrical conductivity barrier in the mainstem of the San Joaquin River (due to reduced flows) restricts spawning runs and spawning activity in that area; 2) flows are insufficient to move larvae out of the central Delta into Suisun Bay nursery areas; 3) striped bass eggs and larvae in the Central Delta are lost in large numbers due to entrainment in agricultural diversions and export facilities; 4) longer residence times in the Sacramento River caused by low flows expose the eggs and larvae to starvation and predation; and 5) decreased flows delay the transport of eggs and larvae to the rich food supplies of the Suisun Bay nursery area, exacerbating the effects of the depletion of their food supply in the central Delta.[13]

The State Board's own original conclusions, and expert testimony presented during the hearings, impelled the State Board to acknowledge in its June 1990 Revised Draft Salinity Plan DF&G's position "that the major impacts on striped bass

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[9] State Board, "Draft Salinity Plan," 5-77.

[10] DF&G, Striped Bass Plan, 9.

[11] Id., 16.

[12] Id., 16.

[13] State Board, "Draft Salinity Plan," 5-83 - 5-87.

are due to flow and diversion, rather than salinity."[14] The State Board's Revised Draft Salinity Plan admits its proposed changes in salinity standards are not in themselves adequate to reverse the decline of the striped bass:

> "The effects of these measures [to regulate salinity], in and of themselves, may not be readily or distinctly measurable apart from other factors, in terms of the Striped Bass Index or other population measurements. Spawning habitat conditions, in and of themselves, are probably not the major reason for the decline of the striped bass. However, in the context of the Water Quality Control Plan for salinity and temperature, these represent the only actions available to attempt to improve the striped bass situation."[15]

Nevertheless, the State Board currently proposes to delay consideration of flow until the water rights phase of the hearings, currently scheduled for completion in late 1992.[16] This directly contravenes EPA's repeated directives, commencing over a decade ago, requiring the State Board to take "immediate" action to revise its Delta water quality standards to protect the striped bass. "EPA Interpretations of Water Quality Standards," supra, Exhibit 1 hereto.

The State Board's failure to protect the striped bass by setting the necessary flow standards also violates express court instructions in the "Racanelli decision" (United States v. State Water Resources Control Board (1986) 182 Cal.App.3d 82, 227 Cal.Rptr. 161). In this decision, the court objected to precisely the plan of action currently proposed by the State Board, the determination of water quality (flow) standards in the context of water rights allocations:

> We think the procedure followed--combining the water quality and water rights functions in a single proceeding--was unwise. . . . The fundamental defect inherent in such a procedure is dramatically demonstrated: The Board set only such water quality objectives as could be enforced against the projects. In short, the Board

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[14] State Board, Revised Draft Salinity Plan, 5-58.

[15] Id., 5-59.

[16] Id., i.

> compromised its important water quality role by defining its scope too narrowly in terms of enforceable water rights. In fact, however, the Board's water quality obligations are not so limited.

182 Cal.App.3d at 119-120; 227 Cal.Rptr. at 180.

Ignoring this direction from the court, the State Board has concluded that "[f]low requirements which will ultimately be established in the water rights decision will be based on the record of the Water Rights hearing."[17]

IV. EPA HAS A MANDATORY DUTY TO PROMULGATE WATER QUALITY STANDARDS TO PROTECT THE STRIPED BASS

EPA has a statutory duty to disapprove and revise any standard which fails to protect beneficial uses, including "the protection and propagation of fish, shellfish and wildlife." 33 U.S.C. §§ 1251(a)(2) and 1313(c)(2), (3). EPA's conclusion that it "cannot approve" the two standards responsible for the protection of the striped bass (and thereby the entire estuary's fishery resources) is ipso facto a disapproval of these standards. In responding to the State Board's second triennial review, EPA had only two options under Section 303(c)(3) of the Clean Water Act: approval of the proposed water quality standards or disapproval and revision of the standards which were inconsistent with the applicable requirements of the Act. "Under section 303(c) of the Act, EPA is to review and to approve or disapprove State-adopted water quality standards." 40 C.F.R. §131.5. Furthermore, section 303(c)(3) of the Act requires EPA to determine that new or revised standards developed in the triennial review process are either consistent or inconsistent with the Act:

> If the Administrator determines that any such revised or new standard is not consistent with the applicable requirements of this chapter, he shall not later than the ninetieth day after the date of submission of such standard notify the State and specify the changes to meet such requirements.

33 U.S.C. §1313(c)(3).

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[17] Id., 6-2.

If the suggested revisions are not adopted by the State within ninety days after the date of notification, EPA must propose new regulations. After a ninety-day comment period, unless the State has adopted acceptable regulations in the interim, EPA must promulgate the revised standards.

EPA has admitted its evasion of its legal responsibility to either approve or disapprove the State's water quality standards in its own internal memorandum. On June 12, 1987, EPA prepared "Delta Standards Action Questions and Answers," marked "For Internal Use Only." In response to the question "Is EPA's action, by neither approving nor disapproving the striped bass standards, in violation of the law?," EPA admitted that its actions were "inconsistent" with the Clean Water Act:

> The Clean Water Act requires EPA to approve or disapprove water quality standards submitted by the State. These [striped bass] standards are clearly not approvable. What we have done may be inconsistent with our regulations. But we believe that in this instance there are mitigating circumstances.

EPA's failure to enforce section 303(c) has resulted in continuing severe harm to the striped bass fishery and the ecosystem of the Bay and Delta, contrary to the purposes of the Clean Water Act. Therefore the undersigned conservation organizations have authorized their counsel to serve this notice of their intent to commence litigation in federal district court to compel you to comply with section 303(c) of the Clean Water Act.

We believe this NOTICE OF INTENT TO SUE sufficiently states the grounds for complaint. If, however, you have any questions, believe any of the foregoing to be in error, or otherwise wish to discuss this matter, please contact the undersigned.

Stephan C. Volker
Of attorneys for Sierra Club, The Bay Institute, Natural Resources Defense Council, California Natural Resources Federation, Pacific Coast Federation of Fishermen's Associations, Inc., United Anglers of California, Point Reyes Bird Observatory, Citizens For A Better Environment, Marin Audubon Society, Santa Clara Valley Audubon Mount Diablo Audubon Society, Ohlone Audubon Society, Madrone Audubon Society, Napa-Solano Audubon Society, and Sequoia Audubon Society

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
215 Fremont Street
San Francisco, Ca. 94105

Carla M. Bard, Chairwoman
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95801

28 AUG 1980

Dear Ms. Bard:

We have reviewed California's water quality standards for the Sacramento-San Joaquin Delta and Suisun Marsh as contained in the Water Quality Control Plan for the Sacramento-San Joaquin Delta and Suisun Marsh (Delta Plan) adopted by the State Water Resources Control Board on August 16, 1978, by means of Resolution No. 78-43. Also, we have reviewed various supporting materials including the January 25, 1979 transmittal of the Delta Plan and the February 7, 1980 transmittal of additional information to supplement the Board's 1979 transmittal.

I am pleased to inform you that I am approving California's Delta Plan as standards for these waters pursuant to Section 303(c) of the Clean Water Act. This action is based upon my determination that these water quality standards are consistent with the protection of the public health and welfare and the purposes of the Clean Water Act.

I commend the State Water Resources Control Board for its cooperation in working with the Environmental Protection Agency in developing and adopting these revised standards. With this approval, the current Federally approved water quality standards for the San Francisco Bay Basin (2) and the Sacramento-San Joaquin Delta Basin (5B) are, in addition to the Delta Plan, the following State Water Resources Control Board documents:

Sacramento-San Joaquin Delta Basin (5B)

"Water Quality Control Plan Report, Sacramento River Basin (5A), Sacramento-San Joaquin Delta Basin (5B), San Joaquin Basin (5C), Volume I", August 21, 1975, as amended, Chapters 2 and 4 ("Basin 5B Plan")

"Water Quality Control Plan for the Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California", May 18, 1972, as amended

EXHIBIT 1

State Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California", October 1968

"Water Quality Control Policy for the Enclosed Bays and Estuaries of California," May 1974

San Francisco Bay Basin (2)

These State Water Resources Control Board documents also apply in the San Francisco Bay Basin with the exception that the "Basin 5B Plan" should be replaced by the following documents:

"Water Quality Control Plan, San Francisco Bay Basin (2), Part I", April 17, 1975, as amended, Chapters 2 and 4 ("Basin 2 Plan")

"Water Quality Control Plan for Ocean Waters of California", January 19, 1978, as amended (Ocean Plan)

The Delta Plan supersedes Figure 4-1 and the Delta salinity standards of Table 4-2, both contained in the Basin 5B Plan. Also, the Delta Plan supersedes the Chipps Island and Suisun Marsh salinity standards of the Basin 2 Plan.

In approving the Delta Plan water quality standards, it is my assumption that the interpretations stated in Enclosure 1 and the schedules for additional standards development set forth in Enclosure 2 will be followed by the Board in the development and refinement of Delta standards. To assure that no misunderstanding may occur, please confirm to me within a month of the date of this letter that these interpretations and schedules conform with the State's views. These interpretations and schedules are not intended to alter any of the conditions, interpretations or schedules of water quality standards development that are outstanding from the letters of approval for any of the previously approved standards in other policies and plans that apply to these waters.

In these continuing efforts toward developing water quality standards, it will be our pleasure to continue to work together with the State to protect the quality of California's waters.

Sincerely yours,

Paul De Falco, Jr.
Regional Administrator

Enclosures

Enclosure 1

ENVIRONMENTAL PROTECTION AGENCY
July 1980

EPA INTERPRETATIONS OF WATER QUALITY STANDARDS
SACRAMENTO-SAN JOAQUIN DELTA and SUISUN MARSH
(DELTA PLAN)

1. If two numerical values in the water quality standards conflict, the more stringent value will prevail.

2. If it is shown that there is a measurable adverse effect on striped bass spawning*, then a complete review of the Striped Bass Spawning Standard Relaxation Provision (at the Antioch Waterworks Intake when project deficiencies are imposed) (Table VI-1, page VI-31) shall commence immediately. Similarly, if any change in Suisun Marsh Chipps Island standards is proposed, as part of that standards amendment process, a review and revision of the Relaxation Provision shall commence.

3. If there is a measurable decrease** in the Striped Bass Index (SBI) below that predicted, the SWRCB shall commence immediate actions to review and revise the Delta Plan standards such that "without project" levels of protection are attained. It is our understanding that an average SBI of 79 represents "without project" protection.

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* "A measurable adverse effect on striped bass spawning" means the following: the Striped Bass Index (SBI) for the individual year is decreased by more than 3 standard deviations from that which would otherwise be predicted using the relationships shown on Figures III-27 and III-28 of the Final EIR for Delta Plan adopted August, 1978.

** Measurable decrease means either:

(1) three consecutive years where the SBI is decreased by more than one standard deviation below that which would otherwise be predicted for each year using the relationships shown in Figures III-27 and III-28 of the Final EIR of the Delta Plan adopted August, 1978; or

(2) six consecutive years where the SBI is below that predicted for each year, using the above relationships.

Enclosure 2

ENVIRONMENTAL PROTECTION AGENCY
July 1980

ADDITIONAL WATER QUALITY STANDARDS DEVELOPMENT
SACRAMENTO-SAN JOAQUIN DELTA AND SUISUN MARSH
(DELTA PLAN)

As a part of the water quality standards revision process pursuant to section 35.1550, the State shall develop additional water quality standards specified below and shall hold public hearings and shall adopt revisions to water quality standards as appropriate.

1. Through State Water Resources Control Board Resolution No. 80-18, "Adoption of a Schedule of Hearings and Actions to Resolve Outstanding Issues Related to the Bay-Delta Watershed," adopted by the Board on April 17, 1980, the Board has committed itself to review water quality issues, to develop additional water quality standards, and to adopt the developed standards. The following list of standards needs is included in work covered by Resolution No. 80-18 and shall be completed as scheduled in the Resolution:

   a. In its review of standards, the Board shall evaluate information developed on:

      1) water treatment costs for industrial processes and municipal uses;

      2) reclamation potential of wastewater;

      3) potential for crop decrement to salt sensitive tree crops and sprinkler irrigated ornamental shrubs for municipal and industrial users from the western delta; and

      4) shall develop additional standards as appropriate to protect those uses.

   b. The State has studies underway to determine the water quality needed to protect agriculture during the portion of the year between August 16 and March 30. These studies are scheduled to be completed by 1982. Additional standards to protect this beneficial use shall be developed.

   c. The State shall evaluate the ongoing negotiations between the State Department of Water Resources, Water and Power Resources Service (formerly USBR) and the South Delta Water

Agency to resolve differences in the determination of effective and acceptable means to protect southern delta agricultural use and develop additional standards to protect this beneficial use, as appropriate.

d. The State shall ensure that necessary studies are performed to provide a basis for additional standards which will supplement the protection derived from striped bass survival standards and provide more appropriate protection for other fish species and aquatic life.

e. The State shall ensure that necessary studies are performed to provide a basis for additional standards which will supplement the protection derived from Suisun Marsh standards and provide more direct protection for aquatic life in marsh channels and open waters.

f. The State has studies underway to determine the water quality needed to protect beneficial uses of San Francisco Bay. These studies are scheduled to be used in a State Board standards review in 1986. The State shall develop standards based on any early conclusions of these studies as soon as possible. These will include standards that maintain the natural periodic overturn in the South Bay to protect the designated beneficial uses of those waters. In any case extensive review of Bay salinity standards shall commence no later than 1986.

g. The State has studies underway to determine the effects of algal productivity in the estuary (including biostimulation) on water quality. These studies shall be used to develop standards to control excessive biostimulation in the estuary as soon as possible. Continued studies and modeling efforts to refine these standards shall be used to update these standards.

2. As part of the triennial review to be submitted to the State Board by August 1981, the State shall evaluate the following to determine what new or additional standards and/or plans of implementation shall be adopted to protect designated beneficial uses.

a) the water quality standards in Cache Slough at the City of Vallejo intake to restore and/or correct any deficiencies in protection of designated beneficial uses that may exist there.

b) water quality standards to protect drinking water supplies from precursors of trihalomethanes. (e.g., salinity and organic materials).

United States
Environmental Protection
Agency

Regional Administrator
215 Fremont Street
San Francisco CA 94105

on 9
...na, California
Hawaii, Nevada
Pacific Islands

EPA

December 6, 1984

Ms. Carole A. Onorato
Chairwoman
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95801

Dear Ms. Onorato:

The Environmental Protection Agency (EPA) has reviewed the prehearing staff report for the Second Triennial Review of the Sacramento - San Joaquin Delta and Suisun Marsh Water Quality Control Plan. We have discussed our comments with Jerry Johns, Manager of the SWRCB Bay - Delta Program.

From the information provided in the prehearing staff report and the testimony that was given at the November 7, 1984 Workshop, EPA believes that the existing water quality standards do not fully protect the designated beneficial uses.

We understand that the SWRCB is developing a revised schedule to develop fully approvable standards to satisfy §303 of the Clean Water Act and implementing regulations (40 CFR 131). This schedule should provide for a Delta Plan that, along with the Basin Plans, fully protects the beneficial uses of San Francisco Bay and Delta. As part of the implementation of these water quality standards, a schedule for resolving questions relating to the State water rights determinations and other water quality management measures should also be developed.

Attached are EPA's comments based on the review of the prehearing staff report and other relevant material. We look forward to continued cooperation in the development and adoption of water quality standards that will fully protect the San Francisco Bay and Sacramento - San Joaquin Delta estuary.

Sincerely,

John Wise

for JUDITH E. AYRES
Regional Administrator

Enclosure

EXHIBIT 2

ENCLOSURE

EPA COMMENTS ON THE SECOND TRIENNIAL REVIEW FOR THE SACRAMENTO - SAN JOAQUIN DELTA AND SUISUN MARSH WATER QUALITY CONTROL PLAN

DECEMBER 1984

Adequacy of Standards

In the draft resolution contained in the staff report, it was stated,

> "that the water quality standards contained in the Delta Plan are reconfirmed as adequate".

However, the information provided in the staff report does not support this conclusion. If such conclusive information is not currently available, the resolution should state that the standards are reaffirmed based on the best available data, and will be revised when the ongoing studies are completed.

Relaxation of Water Quality Standards

The 1978 Delta Water Quality Control Plan contained water quality standards that in some cases were less protective of beneficial uses than previous standards. The rationale for those relaxations was that different standards for different water year types would provide more realistic standards that would not need to be suspended, as occurred during the 1976-1977 drought. During the November 7, 1984 workshop, while discussing the Suisun Marsh standards, SWRCB staff stated that it would not be a difficult process to temporarily relax standards. EPA strongly disagrees with this position. The relaxation of standards must be done consistent with Federal law. EPA approved the Delta Plan on the understanding that the adopted water quality standards would not need to be relaxed (even in critical years) since they were based on hydrologic year type.

"Without Project" Conditions

The 1978 Water Quality Control Plan for the Sacramento - San Joaquin Delta and Suisun Marsh was based on the concept of providing a level of protection to the ecosystem that would have existed without the State Water Project (SWP) and the Federal Central Valley Project (CVP). In the upcoming hearings, scheduled for 1986, it may be more appropriate if the standards were not limited to the impacts associated with the water export projects. This could be accomplished by holding separate hearings for water quality standards and water rights. Water quality standards could then be established in order to fully protect against all the impacts affecting the Bay - Delta

Estuary. The water rights hearings could continue to be based on the "without project" conditions concept. This approach would provide full protection of the designated beneficial uses, and would not limit the implementation of the Water Quality Control Plan to the water export projects.

Toxic Pollutants

On November 8, 1983, EPA promulgated new water quality standards regulations, which put a greater emphasis on toxic pollutants. Section 131.11 (a)(1), reads in part, "States must review data and information on discharges to identify specific water bodies where toxic pollutants may be adversely affecting water quality or the attainment of the designated water use or where the levels of toxic pollutants are at a level to warrant concern and must adopt criteria for such toxic pollutants to protect the designated use." The SWRCB staff report did not identify what steps are being undertaken to address the toxics issue. If the SWRCB believes that this should be accomplished by Regional Boards in the Basin Plan Amendment process, this should be clearly stated. However, since two Regional Boards are involved, it may be more appropriate to establish water quality standards for toxic pollutants as a part of the Delta Plan.

Striped Bass Index

The SWRCB has a statutory responsibility to set water quality standards for the attainment of the beneficial use to protect fish and wildlife. The Striped Bass Index (SBI) was developed as a surrogate standard for the entire Delta fishery. The SWRCB committed to the attainment of a SBI of 79 (in order to provide 'without project' protection of the fishery), until the recent historical level SBI of 106 could be attained. EPA's approval of the Delta Plan was based on the adequacy of the Plan to meet the SBI of 79. The approval condition stated that:

> "If there is a measurable decrease in the Striped Bass Index (SBI) below that predicted, the SWRCB shall commence immediate actions to review and revise the Delta Plan standards such that "without project" levels of protection are attained."

As documented in the staff report for the second triennial review, there has been a measurable decrease in the SBI, as defined in our July, 1980 approval letter. However, no revisions have been made to the Delta Plan to provide protection of the fish and wildlife. The SWRCB staff state that current information available on the Striped Bass decline does not yet support an action that could be taken to correct this situation. During

the first triennial review, this same conclusion was drawn. Therefore, it must be asked if the Striped Bass Index can still be considered a viable surrogate standard for the Delta Fishery. Information provided by the USFWS on chinook salmon also document the inadequacy of the current standards to protect fish and wildlife. Does the SWRCB believe that the information provided by the USFWS could support interim standards for the additional protection of the fish and wildlife resource? What further measures does the SWRCB propose in order to provide full protection of aquatic life in the Bay and Delta?

Suisun Marsh Standards

At the November 7, 1984 workshop, there was concern raised about the Suisun Marsh standards, which became effective October 1, 1984, and it was suggested that the hearings be partially reopened to consider revisions to these standards. SWRCB staff recommended that the hearings not be opened just to review the Suisun Marsh standards. EPA concurs with this, and would like to emphasize the statement on page V-12 of the Appendix to the Delta Plan, "Consequently, modifications have been made reluctantly in the plan extending the compliance date for full project mitigation of the Marsh to October 1, 1984 and increasing interim Marsh protection in dry and critical years. The project operators should not view this date as a target to shoot for, but as a date by which full mitigation will be required through whatever means are available to the projects." If the SWRCB decides to reopen the hearings, EPA feels that it would be inappropriate to limit the focus strictly to Suisun Marsh standards. Other topics which should be addressed include South Delta standards, Fish and Wildlife standards, and interim standards for San Francisco Bay.

Municipal Water Quality Standards

EPA has previously raised the concern about the need to protect drinking water supplies from high levels of sodium and the precursors of trihalomethanes. The staff report concluded that, "these concerns would be more properly addressed through increased public awareness of limiting dietary intake of sodium, use of alternative water treatment techniques, or possible relocation of the Contra Costa Canal intake, rather than through setting more stringent salinity standards in the Delta for public health reasons." Since the Delta has municipal water supply designated as a beneficial use, it is the responsibility of the SWRCB to develop water quality standards that will protect this use [40CFR 131.6(c) and 131.11(a)]. In water treatment, it is preferable to remove (or reduce) the source of a contaminant rather than provide additional treatment. While the control of

salinity may not be the only approach to this problem, further justification is needed to support the statement that it is not necessary to adopt more stringent water quality standards for the protection of public health.

United States
Environmental Protection
Agency

Regional Administrator
215 Fremont Street
San Francisco CA 94105

Region 9
Arizona, California
Hawaii, Nevada
Pacific Islands

EPA

2 9 JUN 1987

Mr. W. Don Maughan
Chairman
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95801

Dear Mr. Maughan:

The U.S. Environmental Protection Agency (EPA) has reviewed State Board Resolutions 85-4 and 87-7, and other relevant materials concerning the Second Triennial Review of the Water Quality Control Plan for the Sacramento/San Joaquin Delta and Suisun Marsh (Delta Plan).

Delta water quality is presently governed by four sets of standards: the Delta Plan, the Water Quality Control Plans for the Central Valley and the San Francisco Bay Basins (Basin Plans), and the Water Quality Control Policy for the Enclosed Bays and Estuaries of California (Bays and Estuaries Policy). This action concerns only the water quality standards contained in the Delta Plan.

The State Board completed the Delta Plan Second Triennial Review in January of 1985 when it adopted Resolution 85-4, and submitted the results of the review to EPA for approval on June 26, 1985. On September 18, 1985 EPA requested additional information from the Board to support certain findings, and gave the Board the opportunity to either supply this information or to modify the findings made in Resolution 85-4. Since neither the requested information nor these modifictions were forthcoming by the time the Board adopted Resolution 87-7 on February 5, 1987 (adopting the workplan for the upcoming Bay-Delta hearings), EPA is taking the following action.

EPA approves the water quality standards contained in the Delta Plan with the exception of the striped bass survival standards and the relaxation provision of the striped bass spawning standard. EPA can not approve these two standards as we believe the standards do not adequately protect the fishery resource. EPA does, however, recognize

EXHIBIT 3

that the necessary changes to these standards are difficult to specify. We also note that the State Board has embarked upon a full-scale review of the Delta Plan standards through a public hearing process. It is mandatory that this process result in standards which provide assured protection for the resource. At the termination of the hearing process, and the submission of the State's standards to EPA, EPA will at that time, take an approve or disapprove action.

In regard to the striped bass survival standards, it is important to note that one of the goals of the Delta Plan was to maintain the fishery in the estuary at levels which would have existed in the absence of the State Water Project and the Federal Central Valley Project. The striped bass was chosen by the State in 1978 as the key indicator species to be used in measuring the health of the fishery resource in the estuary. The striped bass index (SBI), was based upon a relationship between flow and young striped bass survival. This relationship was then translated into enforceable water quality standards for flow through the Delta. In order to restore and maintain the fishery at "without project" levels, these standards were established to attain a long term average SBI of 79. This specific target SBI quantitatively defines the success of the Delta flow standards in protecting the fishery. In adopting the Delta Plan, the Board determined that water quality objectives for flow and salinity alone were sufficient to protect the beneficial uses.

However, the striped bass index as measured between 1978 and 1984 was significantly below the number predicted. The validity of the correlation between flow and striped bass survival has become obscured, perhaps because either: 1) the correlation is no longer as strong as it once appeared, and hence the standard is no longer based upon sound scientific rationale; or 2) some other constituent(s) other than flow and salinity may be severely impacting the striped bass fishery. Regardless of which of these may prove to be the case, the continuing decline of the striped bass index clearly indicates the inadequacy of the existing striped bass survival standards, and the need for substantial revisions in the next Delta Water Quality Control Plan. EPA, therefore, cannot approve these standards.

As mentioned, although the cause behind the continuing decline of the striped bass index may not be clear, it is reasonable to presume that there still exists a flow-survival relationship, and that increased freshwater flows may be necessary in order to better protect the survival of young striped bass. It is EPA's position that the State Board should not allow any further incremental diversions of freshwater flows above those that are presently permitted, until the upcoming Bay-Delta water quality standards review and revision process is completed. Additionally, should the State, as a result of the hearings, decide to allow increased diversions out of the estuary, it may do so only after the necessary antidegradation requirements have been satisfied.

As for the relaxation provision of the striped bass spawning standards, we do not at this time take issue with the scientific validity of the spawning standard itself; however, the evidence for allowing a relaxation of the standard is questionable. Page VI-3 of the Delta Plan states "it may be possible to exceed these values for brief periods with little adverse effect on spawning." Since the drought years of 1976-77 when there was a long period of exceedances of adequate salinity conditions for spawning, the striped bass abundance has not recovered to levels predicted, based upon Delta outflow. While the Delta Plan was not in place at that time, EPA believes that these data have shown that the impacts of the relaxation provision were underestimated. The Board's administrative record (Delta Plan and EIR) supporting the relaxation does not provide any scientific evidence that this relaxation provision will not adversely affect spawning of striped bass. We believe that this evidence is mandatory before EPA can approve such a provision. Therefore, at this time the relaxation provision of the striped bass spawning standard is not approvable.

As we find ourselves in the midst of what will be classified as a "critical" year by the State Department of Water Resources, the issue of the relaxation provision is especially relevant. It is EPA's position that the State Board should remove the relaxation provision until such time as its appropriateness can be demonstrated. This would not preclude the adoption of a similar provision in the Water Quality Control Plan that will result from the Bay-Delta hearings that are scheduled to begin in July.

Regarding the upcoming hearings, additional areas which have been addressed in our earlier letters and which must be addressed in the upcoming hearings include the water quality needs of the Southern Delta and San Francisco Bay. Also, the recently enacted Water Quality Act of 1987 contains some new requirements which will have a direct bearing on the upcoming proceedings. Enclosures 1 and 2 contain a list of both outstanding and new issues that must be considered in the 1987-88 Delta hearings. I would recommend an early meeting between our respective staffs to discuss these issues.

EPA realizes the difficulty of establishing standards for a complex system such as the Bay-Delta estuary. Nonetheless, we have an unswerving commitment to maintain the water quality of the estuary. For this reason we have in the past urged the development of standards to provide interim protection of beneficial uses. This action serves as a recognition that, despite these historic efforts by the State, the San Francisco Bay-Delta is not being adequately protected.

We look forward to working with the State Board towards developing water quality standards for the estuary which will be truly protective of the resource, the importance of which cannot be overstated.

Sincerely,

ORIGINAL SIGNED BY:
JUDITH E. AYRES

JUDITH E. AYRES
Regional Administrator

Enclosures

cc: Executive Officer, Central Valley Regional Water Quality Control Board (w/o enclosures)
Executive Officer, San Francisco Bay Regional Water Quality Control Board (w/o enclosures)

RA - Reading File
W-1 - Reading File
W-3 - Reading File
W-3 - Official File

W-3 - J. Johnstone, Larry, 06/24/87

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 9
1235 MISSION STREET
SAN FRANCISCO, CA 94103

AUG 20 1990

Mr. W. Don Maughan
Chairman
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95801

Dear Mr. Maughan:

Thank you for the opportunity to comment on the Draft Water Quality Control Plan for Salinity. Our specific comments are attached, but we have the following general concerns:

First, we remain concerned that the Draft Plan does not fully satisfy the requirements of the Clean Water Act and federal regulations. As we explained in more detail in our February 23, 1990 letter to the Board, the standards included in the Draft Plan do not satisfy the conditions of EPA's 1980 approval of the Delta Plan, and will be not be sufficient to protect the designated uses of the estuary.

Second, while we appreciate the Board's desire to expedite adoption of salinity and temperature standards, we are concerned that the Board's decision to delay consideration of flow standards will make it more difficult for the Board to develop a comprehensive management plan for the estuary. Since temperature, salinity, and instream flows are so closely linked in estuarine systems, we believe that an integrated plan is essential to improve and maintain estuarine habitat conditions.

Finally, we are concerned that several standards included in the Draft Plan would provide minimal protection for the Delta's declining fish populations, and are limited to those that can be achieved with little or no changes in water project operations, conservation and conjunctive use programs, agricultural drainage practices, or other measures. None of the draft standards would significantly improve habitat conditions above current conditions or those levels already required in the 1978 Plan.

We believe that the Board should take a broader approach in setting standards. As the core element of a comprehensive resource management plan, water quality standards can and should serve as the long-term goals of the estuary, and should provide a basis for evaluating the impacts of proposed water projects, changes in operations, agricultural drainage programs, and all other activities that may affect the desig-

nated uses of the Bay and Delta. They should also be supported by sound scientific analyses, and must be sufficient to fully protect the most sensitive uses.

We understand that full implementation of such standards may require significant time, resources, and interagency cooperation in a number of areas. We also recognize that demands for high quality municipal water supplies will be increasing. However, we believe that all interested parties are willing to work towards mutually acceptable solutions to the state's water quality and supply needs, and we are fully committed to that effort.

If you have any questions regarding our comments, please call me at (415) 705-2078, or have your staff contact Patrick Wright at (415) 705-2178.

Sincerely,

Harry Seraydarian
Director
Water Management Division

Enclosure

EPA COMMENTS
DRAFT WATER QUALITY CONTROL PLAN FOR SALINITY

Designated Uses

1. The Plan correctly states that "estuarine habitat" should be the designated use for protection of the fish and wildlife resources of the estuary. In addition, the Plan should note that the uses listed in Appendix A, including cold and warm water habitat, marine habitat, wildlife habitat, and preservation of rare and endangered species, have been approved by the state and EPA as designated uses and must be protected.

2. The Plan's listing of "antidegradation" as a designated use may be confusing to some parties. While we agree that the Board should adopt an objective for Suisun Marsh that is consistent with the antidegradation policy, it is not necessary to list antidegradation as a use. State and federal antidegradation requirements apply here and elsewhere regardless of whether the Board includes it as a designated use.

Municipal and Industrial

1. We agree that the 150 mg/l chloride standard should be retained for municipal purposes. However, we are concerned that the Plan also suggests that this standard may be eliminated following negotiations between the Department of Water Resources (DWR) and the paper manufacturers near Antioch (pp. 5-5 & 7-34). If the standard is necessary to maintain high quality water for municipal purposes, it shouldn't be relaxed or eliminated on the basis of these negotiations.

2. A relaxation of this standard would also be inconsistent with the state and federal antidegradation policies, unless the Board determines 1) that all existing uses are fully protected, including fish and wildlife uses that may receive umbrella protection from this standard, and 2) that the lowering of water quality is necessary to accommodate important and economic and social development in the area in which the waters are located (See 40 CFR 131.12).

3. We concur with the comments of the State Water Contractors, DWR, and other parties regarding the need for source control to maintain high quality water supplies. Several recent studies have concluded that the contribution of THM precursors from agricultural drains may be significant. The Board should ensure that appropriate further studies are completed, and begin developing a program to reduce the impacts of agricultural drains on Delta water quality conditions.

Agriculture - South Delta

1. EPA agrees that the 1978 Plan standards should be fully implemented to protect salt-sensitive crops in the southern Delta. We are concerned, however, that the recommended 1.0 mmhos/cm EC (640 TDS) standard may cause a significant lowering of water quality in the southern Delta from September to March. The Draft Plan should fully discuss the potential impacts of this standard on agricultural and aquatic habitat conditions during this period, and whether the standard is consistent with state and federal antidegradation policies.

Salmon - Temperature

1. We agree with the concerns of the Department of Fish and Game and US Fish and Wildlife Service that the recommended temperature standard of 68 degrees would not fully protect migrating salmon smolts in the Sacramento and San Joaquin Rivers. Section 5.3 of the Appendix to the Draft Plan notes that smolts are "highly stressed" at 68 degrees, and that "temperatures below 65 degrees are generally considered desirable." Appendix Table 5.3-1 indicates that a change in temperatures from 68 to 65 degrees would significantly improve survival of chinook salmon over a wide range of flow levels. In short, there appears to be no scientific justification for the recommended alternative.

2. We are also concerned that the phrase "controllable factors" is included in the standard, rather than in the implementation plan. We recognize that certain control measures - particularly cold water releases from reservoirs - may have mixed results in lowering water temperatures, and that there may be some tradeoffs between providing optimum temperatures for all salmon runs. However, these concerns are more appropriately addressed in the implementation section of the Plan.

3. The Plan notes that temperatures have risen from 4 to 6 degrees in the Sacramento River since 1978 (p. 5-29) The Board and other parties should fully evaluate the reasons for this increase so that appropriate mitigation plans can be developed and implemented. In light of this data, and until more information is evaluated, we believe it is premature to conclude that reservoir releases - or any other measures - would not be effective in lowering or maintaining temperatures. The Board should fully evaluate the benefits of changes in water project operations, riparian vegetation and shading, and other measures as part of its implementation plan.

4. We share the Board's concern over the difficulty of isolating the effects of temperature from other factors, and that temperature conditions should be analyzed in relation to flow, exports, and other factors (p. 7-15). Temperature and in-stream flow levels should be considered together as part of a comprehensive management plan to ensure that salmon migration and habitat conditions are protected.

5. The Plan should recommend that additional monitoring stations be established to record temperature levels at other important locations in the Delta.

Striped Bass - Antioch Standard

1. The Plan should clearly explain the scientific basis for the 1.5 mmhos/cm EC standard at Antioch to protect striped bass spawning. No scientific or technical analysis supporting this standard is mentioned or referenced in the Draft Plan.

Striped Bass - Relaxation Provision

1. In 1987, EPA concluded that there was no scientific evidence supporting the relaxation provision of the striped bass spawning standard at Antioch. It was apparently based on a statement by the Department of Fish and Game (DFG) that "it may be possible to exceed these values (the Antioch spawning standards) for brief periods with little adverse effect on spawning" (1978 Delta Plan, p. VI-3). In light of the continuing decline of striped bass, and the Board's failure to provide additional supporting evidence, EPA concluded that the relaxation provision was not approvable.

2. The Draft Plan does not provide any additional scientific analyses in support of this provision. The only statement in the Plan regarding the impact of this provision is that the DFG has testified that "striped bass would be put under additional stress if the relaxation provision were in effect" (p. 5-51).

3. We recognize that the Board has strengthened the standard to match the level of protection that was expected in the 1978 Plan. However, the standard has now been set to reflect salinity levels that would be provided by another standard (for Suisun Marsh), rather than on the basis of salinity levels necessary to protect spawning. EPA cannot approve standards that are not supported by sound scientific rationale.

Striped Bass - Prisoners Point Modification

1. The Draft Plan does not explain why the Board chose alternative 3-B (.44 mmhos/cm EC) rather than 3-A (.30 mmhos/cm EC) to delimit the upstream end of the San Joaquin River spawning area. The Plan states that "the Phase I testimony and exhibits indicate that striped bass prefer to spawn in water with an EC of less than .3 mmhos/cm EC" (p. 5-56). Recent information presented by the Department of Fish and Game (Stevens, et al., December 5, 1989) also indicates that most spawning takes place where EC levels are less than .3 mmhos/cm EC. The Draft Plan should fully describe the scientific basis for the recommended alternative, and the extent to which lower levels would improve striped bass spawning conditions.

Striped Bass - Extension of Spawning Habitat

1. We disagree with the Board's decision not to recommend expansion of the areal extent of striped bass spawning standard to Vernalis. The staff analysis in the Draft Plan and the comments of the fisheries agencies all conclude that this alternative would be a positive step towards restoration of striped bass spawning on the San Joaquin River.

   The Board's recommendation against this alternative appears to have been based on two assumptions: a) that the majority of eggs and young produced in the upper Delta would be lost to the state and federal pumps, and b) that the water supply impacts may be significant.

   a. We recognize that some parties are concerned that this alternative may have mixed results if not considered together with improved flow standards and export limits. These concerns underscore the need for the Board to adopt an integrated set of standards to improve spawning and habitat conditions. In setting standards for striped bass spawning, the Board should not limit itself to considering only those alternatives that are already achieved under current conditions and operations.

   b. The water supply impacts of this standard may be significantly overstated, for several reasons in addition those already identified in the Plan. First, the estimates do not take into account flows that are likely to be needed for salmon migration. In the 1988 Draft Plan, the Board concluded that flows must be increased substantially on the San Joaquin River to adequately protect salmon populations. Second, and perhaps more important, the Plan does not include estimates of additional water supplies that might be made available from conservation, conjunctive use, reclamation, and other programs that will be implemented under the Board's "California water ethic."

Finally, the benefits of agricultural drainage programs in lowering salinity levels were not considered. All of these programs have the potential to significantly reduce the water supply and economic impacts of any proposed changes in salinity standards.

Suisun Marsh

1. We agree with the Board's recommendation to fully implement the 1978 Delta Plan standards for Suisun Marsh. As noted in the Draft Plan, this approach would be consistent with the requirements of the state and federal antidegradation policies.

2. Page 7-6 of the Draft Plan states that "the antidegradation objectives should all be implemented by the summer of 1993, unless appropriate parties provide studies indicating that lower water quality will be adequate to protect existing uses fully." In addition, as the Plan notes on page 5-74, the Board must demonstrate that "allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located." (40 CFR 131.12)

Water Supply Impacts

1. The Draft Plan's summary of the water supply impacts of the "potential objectives" is confusing and inadequate. As several parties have noted, the actual impacts of the proposed objectives on Delta outflow and exports are difficult to determine because the estimates are lumped together. Since the separate numbers have been generated and are available, they should be included in the Plan.

2. The Plan should clearly describe which standards are controlling during various periods and water year types. This information is essential to understand the extent to which certain standards provide umbrella protection for other uses.

Water Year Classification

1. We share the concern of the Department of Fish and Game that the new water year classification shifts the average classification towards a drier condition. The Board should strongly consider amending the estuarine habitat standards to ensure that they will continue to provide at least an equivalent level of protection under the new classification.

Salt Load Reduction Policy

1. We applaud the Board for directing the Central Valley Regional Board to develop a salt load reduction policy for the San Joaquin River. However, the Regional Board should not focus exclusively on irrigation efficiency, but should consider a full range of options to reduce the impacts of agricultural drainage on beneficial uses.

2. As part of that effort, the Regional Board should also adopt salinity standards for the San Joaquin Basin upstream of Vernalis. On April 13, 1990, EPA approved certain amendments to the Basin Plan with the condition that the Regional Board would adopt salinity standards for the San Joaquin Basin during the next triennial review.

Special Studies

1. We agree that a variety of studies are needed to develop a better understanding of ecological processes in the estuary. The Board should take a more active role to ensure that the most critical studies are developed and completed.

2. The Plan should also include a commitment by the Board to ensure that appropriate studies are completed to set salinity standards for San Francisco Bay. EPA's approval of the 1978 Delta Plan was conditioned on the Board's commitment to develop such standards as soon as possible to maintain the natural periodic overturn and ecological integrity of the Bay.

Recreation

1. We disagree with the Board's conclusion that the Plan should have no impact upon the quality or quantity of existing recreational opportunities (p. 6-21). Healthy striped bass and salmon populations would significantly improve recreational opportunities in the Bay and Delta.

Other Concerns

1. Footnote 8 of Table 5-8 states that "a water right permit is a standard not an objective." This statement should be clarified or deleted.

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September 18, 1990

Mr. William K. Reilly
National Administrator
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Re: Sierra Club Legal Defense Fund, et al. Sixty-Day Notice of Intent to Sue EPA Administrator under Section 505 of the Clean Water Act, 33 U.S.C. § 1365 for Alleged Failure to Promulgate Water Quality Standards to Protect Beneficial Uses of the San Francisco Bay Delta

Dear Administrator Reilly:

The undersigned represents the Central Valley Project Water Association ("CVPWA"), an association which includes almost all of the entities, municipal, industrial and agricultural, who contract for water from the United States Central Valley Project and the California State Water Project Contractors ("SWP"), a corporation comprised of 30 entities who contract for water made available from the California State Water Project. These organizations or their predecessors have been involved in every proceeding undertaken to establish water quality standards/objectives in the San Francisco Bay and Sacramento-San Joaquin River Delta and Estuary, including all aspects of the current efforts being undertaken by the California State Water Resources Control Board ("SWRCB") to review its prior Water Rights Decision 1485 and associated Water Quality Control Plan.

We have reviewed the above referenced July 31, 1990 Notice, and based upon the analysis and comments set forth below, we respectfully urge you to refrain from taking any action to interfere with the SWRCB's process or to adopt standards for striped bass as proposed by Sierra Club, et al. (hereinafter "Sierra Club"). To the extent that Sierra Club carries through with their threat to bring suit against you, we will attempt to intervene on your behalf. To the extent you grant their request, however, we will evaluate our own litigation options to ensure that the Environmental Protection Agency ("EPA") does not impair or impede the powers of the SWRCB to make appropriate water allocation decisions in the best interests of all beneficial uses at issue.

Circuit Court noted that this limitation was based upon Congress' belief that certain pollution control efforts were better left to the states to pursue in accordance with their inherent power to regulate not only water quality, but also water rights.

> "Congress did not want to interfere any more than necessary with state water management, of which dams are important components . . . in light of its intent to minimize federal control over state decisions on water quantity, Congress might also if confronted with that issue have decided to leave control of dams insofar as they affect water quality to the states. Such a policy would reduce federal state friction and permit states to develop integrated water management plans that address both quality and quantity."

The foregoing indicates an unambiguous congressional intent to leave certain water quality issues which involve water allocation -- such as salinity intrusion -- to the states. *A fortiori*, non-water quality issues which involve water allocation, such as the issues raised by Sierra Club in its letter are certainly outside EPA's jurisdiction. Indeed, this limitation is specifically made a part of the Federal Water Pollution Control Act. Section 101(g), 33 U.S.C. § 1251(g) provides:

> "It is the policy of Congress that the authority of each state to allocate quantities of water within its jurisdiction shall not be superseded, abrogated or otherwise impaired by this chapter. It is the further policy of Congress that nothing in this chapter shall be construed to supersede or abrogate rights to quantities of water which have been established by any state. . . ."

It should also be noted, however, that salinity and other similar water allocation concerns are, in fact, being dealt with as part of the regulatory process currently underway before the State Water Resources Control Board of California. As a consequence, no legitimate argument exists that somehow these important issues will be overlooked by the California SWRCB. The process underway in California will deal with such issues raised by Sierra Club as (1) flows to move larvae out of the central Delta into Suisun Marsh, (2) the alleged loss of striped bass eggs and larvae in the central Delta due to entrainment and agricultural diversions and export facilities, (3) longer residence times in the Sacramento River caused by low flows that arguably expose the eggs and larvae to starvation and predation and (4) the alleged impact of decreased flows on transportation of eggs and larvae to the food supplies of Suisun Bay. For purposes of considering Sierra Club's letter, however, it is crucial to keep firmly in mind the fact that these are all flow related water allocation decisions having nothing to do with water quality. Consequently, they are beyond EPA's regulatory role as defined in the Clean Water Act.

proceed with the development of reasonable standards/objectives for the protection of all beneficial uses of Delta waters.

Very truly yours,

McDONOUGH, HOLLAND & ALLEN
A Professional Corporation

By _____
Stuart L. Somach

Attorneys for
Central Valley Project Water Association

KRONICK, MOSKOVITZ, TIEDEMANN
& GIRARD

By _____
Clifford W. Schulz

Attorneys for
State Water Project Contractors

BEST, BEST & KRIEGER

By _____
Arthur L. Littleworth

By _____
Gregory Wilkinson

Attorneys for
State Water Project Contractors

SLS:sb

1 0 OCT 1990

Glen Reid
(b) (6) [redacted]

Dear Mr. Reid:

Thank you for your letter of August 23, 1990 to the EPA Administrator regarding water quality standards in the San Francisco Bay/Delta estuary. Your letter was referred to my office.

As you know, the California State Water Resources Control Board issued a Draft Water Quality Control Plan for Salinity in June. The Draft Plan includes new and revised water quality standards for salinity and temperature, but defers consideration of the freshwater flow needs of the estuary to later proceedings.

I have enclosed a copy of EPA's comment letter on the Draft Plan. Our letter raised two major concerns. First, we questioned whether the draft standards would be adequate to restore and maintain the fisheries and other aquatic resources of the estuary. EPA regulations require that water quality standards be sufficient to fully protect estuarine habitat conditions. Second, we noted that the draft salinity and temperature standards provide less protection for aquatic life than those recommended by the Department of Fish and Game and the U.S. Fish and Wildlife Service. According to EPA regulations, states must submit standards that are supported by sound scientific evidence.

Because the Clean Water Act gives states the primary responsibility for setting standards, EPA would prefer to defer to the State Board proceedings to address these concerns. However, if the State Board fails to adopt standards that meet federal requirements, EPA may have no choice but to intervene. Under the Act, EPA has the authority to disapprove the state's standards, and to set federal standards if the state then fails to make the necessary changes. Please be assured that EPA will carefully evaluate the state's Final Plan scheduled for adoption in December, and will take appropriate steps to ensure that the state's water quality standards are truly protective of the aquatic resources of the estuary.

I hope this letter has clarified EPA's concerns. Should you have any further questions, please contact Patrick Wright of my staff at 744-1997.

Sincerely,

Original Signed By:

Daniel W. McGovern
Regional Administrator

Enclosure

SYMBOL	W-3	W-4		W-1	RA	
SURNAME	PW	Wiltsefuck		[illegible]	DMS	
DATE	10-2-90	10-2-90		10/2/90	10-10-90	

U.S. EPA CONCURRENCES OFFICIAL FILE COPY

STATE OF CALIFORNIA—THE RESOURCES AGENCY GEORGE DEUKMEJIAN, *Governor*

DEPARTMENT OF WATER RESOURCES
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NOV 3 1 1990

Mr. Harry Seraydarian W-1
United States Environmental Protection
Agency, Region IX
Office of Drinking Water
74 Hawthorne Street
San Francisco, CA 94105

Dear Mr. Seraydarian:

The Municipal Water Quality Investigations Advisory Committee was established by the Department of Water Resources to address policy issues related to water quality in the Delta. The Committee meets quarterly, or as necessary. It would be helpful to have an Environmental Protection Agency representative on this Committee.

The list of current Committee members includes Art Jensen, Contra Costa Water District; Lyle Hoag, California Urban Water Agencies; Duane Georgeson, The Metropolitan Water District of Southern California; Roger James, Santa Clara Valley Water District; and Gerome Gilbert, East Bay Municipal Utility District. We have also asked the State Water Resources Control Board and the State Department of Health Services to appoint management-level representatives to the Committee.

If you have any questions concerning this request, please contact me at (916) 445-3081, or your staff may call Rick Woodard at (916) 327-1636.

Sincerely,

James U. McDaniel
Deputy Director

cc: Mr. Mike Cook, Director
United States Environmental Protection Agency
Office of Drinking Water
401 "M" Street SW
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ENVIRONMENTAL DEFENSE FUND

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October 17, 1990

Dan McGovern
Regional Administrator, EPA
1235 Mission St.
San Francisco, CA 94103

Dear Dan:

Thanks again for spending so much time with Terry, John and me on Monday discussing Bay/Delta and American River issues. And thanks also for calling General Yankoup on our behalf. We'll pursue that lead.

You requested at our meeting that I send you my proposed testimony for the now aborted Water and Power Subcommittee hearing on October 22. A Draft is enclosed. Let me know if you think it's overly provocative.

Sincerely yours,

Thomas J. Graff
Senior Attorney

Enc.

TJG/ldk

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25 OCT 1990

RA DRA JW 10.25.90
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Testimony of Thomas J. Graff

Senior Attorney

Environmental Defense Fund

Before the Subcommittee on

Water, Power and Offshore Energy Resources

of the

Committee on Interior and Insular Affairs

U.S. House of Representatives

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San Francisco, CA **October 22, 1990**

Dear Mr. Chairman, and Members of the Subcommittee, thank you for inviting me to testify here today.

Your coming here to California to hold this field hearing on the State's water supply situation is particularly timely. Not only is California in the midst of the longest sustained drought that it has experienced since the early 1930s, but politically the state is on the verge of electing a new Governor, who will surely be called upon to follow new paths in developing a water policy appropriate to the state as it approaches the 21st century.

In your letter requesting my testimony, you particularly asked me to address general problems with water management in the state, with a particular focus on water transfers and on Central Valley Project operations. It is these three subjects which this testimony will address.

I. Water Management. From an environmentalist's perspective, the main problem with California water resources management is that the planning and operation of its major water supply and delivery systems have relegated the environment to a subordinate position. To name a few of the consequences of this policy, we nearly lost Mono Lake; we have badly depleted freshwater flows to the San Francisco Bay/Delta estuary, especially in springtimes and in dry years; we have converted the San Joaquin River in different sections into a dry riverbed and an agricultural sewer; we have endangered the winter run salmon in the Sacramento River; we have caused great damage to other Sacramento River and to Trinity and American River fisheries as well; and we have deprived most of the few remaining wetlands of the Central Valley of an assured available high quality water supply. This list is long but incomplete, yet progress in protecting the resources I have just enumerated

has been very slow, even in the last twenty years of supposedly great environmental awareness.

Yet I think it is fair to say that it not just the environmentalists who are dissatisfied with water policy in California. Urban water managers, agriculturalists, and real estate developers decry their situations as well. For them, the old bromides still hold great attraction. The General Manger of the Metropolitan Water District continues to wage a lonely but spirited campaign for the Peripheral Canal. His agricultural equivalent on the east side of the San Joaquin Valley won't say die to the Mid-Valley Canal project. And a federally subsidized Auburn Dam in one form or another continues to attract great support from a wide variety of Sacramento area interests.

That all these projects are hopelessly entangled in federal and state budgetary problems, and in environmental, technical, economic, institutional and political controversy doesn't dissuade their proponents from pressing on with their schemes. The result has been something approaching policy gridlock. The favored projects don't move forward, but frequently neither do policy reforms which might better protect impacted environments, even where opposing interests may lose little or nothing as a consequence.

The few times significant progress was made in the 1980s, it was when consensus could be achieved, most notably in the case of the coordinated operation agreement legislation spearheaded by the chairman of this subcommittee in 1985 and 1986. Two ingredients were essential in that effort, and in a similar effort in 1989 which passed state legislation resolving a fiscal controversy regarding the State Water Project, while creating an environmental water fund: one was political leadership and the

other was an outcome which gave all the principal involved interest groups significant benefits.

The lesson to be learned for California water management in the 1990s is therefore clear. General improvement will come, if at all, through negotiated outcomes which take account of all significant interests and which are sponsored by strong leaders. Any of the three major sectors in California's water management equation, the urban, the agricultural, and the environmental, if unified, probably has the power to block major actions hostile to its interest. Making major improvements, on the other hand, will require active cooperation among all these sectors of a type for which the models are few and against which the odds are long. The challenge for this subcommittee, as well as for the constituencies whom its actions affect, will be to build those models and to beat those long odds.

II. Water Transfers. The development of new water supplies by the construction of dams and canals or the sale of already developed but unallocated water (such as from the unallocated yield of the Central Valley Project) will, except in rare extraordinarily wet conditions, almost inevitably damage the environment from which the water supply is diverted. Where then should areas which need supplemental water supplies acquire their water? Some would answer desalination, wastewater reclamation, or water conservation in the area seeking the supplemental water. All of these sources do have merit. But the source which has the greatest potential is the acquisition of water transferred by others who correspondingly reduce their use. This kind of conservation and transfer program, contrary to conventional development, does not increase the total stress which freshwater diversions and depletions place on the state's aquatic ecosystems and resources. As a

result, water conservation and transfer is California's most promising new source of water supply.

California law unambiguously promotes the voluntary transfer of appropriative water rights; federal law regarding water transfers, on the other hand, is ambiguous at best and downright hostile to transfers at worst. There are, of course, exceptions to California's support of water transfers. Transfers of groundwater, of riparian rights and of State Water Project contract rights are not encouraged. Even appropriative water rights transfers are subject to State Water Board and potentially to CEQA review and may be hedged by restrictions at the water district level or in conveying the water from seller to buyer. But probably the biggest current deterrent to water transfers in California today is the fact that no one knows whether federally contracted water can legally be resold at a profit to buyers who are not themselves a part of the Central Valley Project and who may be outside what at least some in the federal establishment consider to be the legitimate service area of that project.

Congress could easily remedy this problem with a simple law, specific to the CVP if necessary, which authorizes the voluntary resale of federally contracted water. No geographic restrictions are warranted. A guarantee that the federal financial interest in the project is protected is appropriate. Some limited bureaucratic review to insure that third parties, including the environment, are protected is also appropriate. Any further restrictions on transfers, however, may threaten their viability or at least will significantly reduce their potential for helping to meet California's various water supply needs.

Now I recognize that this prescription may not be supported in some other quarters of California's environmental community where the preferred method of reallocating water is by bureaucratic fiat. EDF itself has argued in many contexts for bureaucratic and legislative dictates which would reallocate water to environments that have long been starved of water which is rightfully and in some cases legally theirs. The SWRCB's protracted Bay/Delta hearings are a classic example. But the reality is that these bureaucratic and legal processes, with only an occasional exception, have not been working. The Bay/Delta process, if it is moving at all, is moving backwards. The gains which are made in litigation over such resources as Mono Lake and the American River either transfer the environmental harm to another resource or are chipped away by Congressional action.

The fact remains that a vast majority of California's developed surface water supply is controlled by law or in practice by the State's agricultural water districts and growers, who acquired that water at very little cost, but who know enough about the value of what they control that they will not relinquish it without a fight or without substantial economic incentives. Those who see reallocation of <u>some</u> of that water as a major part of the solution of California's water woes either must come up with the resources to pay for it or they will have to expend even greater resources fighting for it. What I am saying in this testimony is that by far the preferable route to a beneficial reallocation of California's water is to follow the route of voluntary transfers.

III. <u>Central Valley Project operations</u>. Even if Congress were to pass a law next year directing the Bureau of Reclamation to encourage the voluntary resale of CVP contract rights, however, the Bureau would still have

substantial discretion in its operation of the CVP to help or harm the environments affected by its operations. The question therefore arises: should Congress also act to channel that discretion in a manner which changes the current orientation of CVP operations? This is in fact the question which this Subcommittee answered in the affirmative when it passed out Central Valley fish and wildlife protection legislation this year. It is a question which the Subcommittee should continue to answer affirmatively next year should its legislation not pass the whole Congress this year.

Even the most recalcitrant historic beneficiaries of the federal government's largesse in building and operating the CVP should recognize that times today are different from what they were in the 1930s. Aquatic environments throughout the state have deteriorated and people throughout the state are concerned about that deterioration and want to see the situation improved. Support for the cheap water subsidy that the CVP provides its contractors is diminishing, as is support for providing subsidized water to growers who also receive subsidies to forego the production of surplus crops. While some still make the distinction between small family farmers and large corporate agribusiness, no grower is wholly exempt from the question why he or she should be singled out for a government welfare program whose ancient purposes have for the most part run their course. Inexpensive food and fiber for a hungry world may still be a worthy policy goal, but the subsidizing of scarce water supplies to achieve that goal has too many unwanted side effects.

The time therefore seems ripe in 1991 for an historic compromise. Federal legislation should be developed which directs the Bureau of Reclamation to reorient its mission in guiding the CVP to include environmental objectives. That same legislation should also encourage the

voluntary conservation and transfer of federal water and it should bring to an end the legal controversy over the renewal of federal long-term water supply contracts. This implies that prospective "new" customers of the CVP should expect to obtain supplemental water supplies not from the unallocated "surplus" water under the Bureau's control, but rather from water marketing deals arranged with those who already have Bureau water under contract or who have already acquired appropriative water rights under California law.

As we have in the past, EDF would be pleased to work with the Subcommittee in the further refinement of legislation which would help to meet these multiple objectives. Urban areas should be able to acquire the water they need. So should environments. And those who give water up to meet these needs should be compensated. If this simple formula is followed, substantial progress in meeting the needs of California's myriad water interests is probable in the next few years.

Thank you again for providing me with the opportunity to address you. I would be happy to answer any questions you may have.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

November 8, 1990

OFFICE OF
THE ADMINISTRATOR

NOTE TO: Laura Loux, Region IX
Pat Lyttle, OPPE
Arelia Wright, OW
Carolyn Hall, OGC

SUBJECT: Meeting with Jan Sharpless, Secretary of Environmental Affairs, State of California

Attached is a copy of the incoming letter from Jan Sharpless requesting a meeting with the Administrator. As we discussed, the prebrief is scheduled for Tuesday, December 4, 9:30-10:00 AM, in Room 1200 WT. The meeting with the State representatives will take place on the same date at 11:00 AM (probably in the 12th Floor Dining Room). I am blocking one half-hour on the Administrator's calendar, but would suggest that you hold an hour on each of their calendars in case further discussion is required.

I have asked the Regional Office to provide the necessary background for the Administrator for this meeting.

11/19

Attendees from the State of California will be:

Jananne Sharpless, Secretary of Environmental Affairs
W. Don Maughan, Chairman of the California Water Resources Control Board
Jim Baatge, Executive Officer, Water Control Board
Bob Moore, State of California, DC Office
Michael Bryne, State of California, DC Office

EPA attendees will include: the Administrator, Dan McGovern, Bob Wayland, Don Elliott and Terry Davies.

If you have any questions, please give me a call.

Pat

Pat Thorne

09 NOV 1990

R2/DRA _____

Referred To _____

CC: _____

File: _____

Attachment

State of California

SACRAMENTO

JANANNE SHARPLESS
Secretary of
Environmental Affairs

October 18, 1990

Honorable William Reilly
Administrator
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, DC 20460

Dear Mr. Reilly:

The purpose of this letter is to request an opportunity to meet with you to discuss water quality issues related to agricultural drainage, reclaimed water, and the Sacramento-San Joaquin Delta. These issues are critical to California's future and therefore are worthy of high level attention and understanding by you and other EPA officials in Washington.

Effective agricultural practice in California depends on adequate drainage of the water after it has been applied to the land. The man-made drainage canals and adjacent sloughs have created many miles of aquatic habitat. This habitat can be improved by better farm management, but we believe that it is unrealistic to require that these drains and sloughs meet the pristine water quality standards apparently required by the federal Clean Water Act.

Water conservation and the reuse of reclaimed water are basic to California's efforts to serve its rapidly growing population and industry. The use of streambeds, which are normally dry during the majority of the year, to transport treated waste water for reuse is critical. This means that treated waste water will be the dominate flow in such streambeds during most of the year. Apparently the Federal Clean Water Act considers the treated waste water as equivalent to natural flow and thus requires such water to meet the same water quality standards. Again, we feel that there needs to be some relief from such standards in order that we can continue to use reclaimed water.

Finally, the State is in the middle of its hearing process to determine how water should be allocated from the Sacramento San-Joaquin Delta. Issues have been raised concerning whether fresh water flow to repel saltwater tides is a water quality or a water right decision, or both. We believe that the dominate authority needed to reasonably balance and protect all the beneficial uses and properly allocate our water resources is the State's water right authority.

1102 Q STREET, SACRAMENTO, CALIFORNIA 95814 (916) 322-5840

These three water issues are extremely important to California. We have worked with your Regional EPA officials on these and many other matters of mutual interest and enjoy a good working relationship. However, your Regional office has the unenviable task of trying to reconcile policy directions from Washington, D.C., with the unique water situations in California.

Mr. W. Don Maughan, Chairman of the California Water Resources Control Board, and I would deeply appreciate the opportunity to discuss these important policy issues with you.

Sincerely,

Jananne Sharpless
Secretary

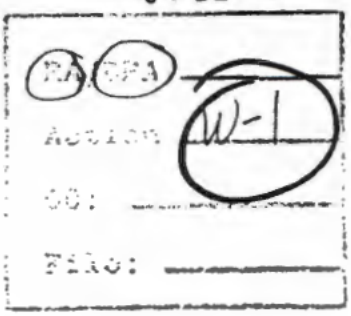
cc: W. Don Maughan, Chairman
Calif. State Water Resources Control Board

Daniel McGovern, Administrator
U.S. EPA, Region 9

The Bay Institute
OF SAN FRANCISCO
a public service research organization

Pat Patrick

03 DEC 1990



William K. Reilly
Administrator
U. S. Environmental Protection Agency
Washington, DC 20460

November 30, 1990

Dear Bill:

We sense that you are becoming increasingly involved with the state of water quality control planning in the Bay-Delta estuary -- which means with the state of water quality planning for most of the State of California, as you know.

Those of us who have been involved since the State's "interim" Bay-Delta plan was approved in 1978 believe that California needs intervention by the EPA. Twelve years of continuous environmental devastation of this enormously valuable estuary is enough. The drastic declines of indicator species like the striped bass and Delta smelt, plus annual increases in exports, must be stopped.

A little history is necessary, because we've been through a lot:

There was no involvement by the environmental and fishing communities in the Decision 1485/Water Quality Control Plan for the Sacramento-San Joaquin Delta and Suisun Marsh in 1978. This plan is still in effect, though its interim "standards" are now totally discredited by events that include a growing list of endangered fish, animal and plant species in the estuary and deteriorating water quality in the Delta.

The Racanelli decision of May 1986 rapped the Board good for its failure to use its water quality protection powers, for favoring water rights at the expense of water quality, and for not protecting fisheries in its 1978 order. On November 26, 1986 the Board approved a carefully prepared hearing plan, with a schedule that was to conclude with a new decision in July 1990.

In 1987 the Board held 54 days of evidentiary proceedings, between July 7 and December 30. There were more than 65 interested parties, this time including three major environmental organizations -- Environmental Defense Fund, Natural Resources Defense Council, Sierra Club Legal Defense Fund -- and the Bay Institute of San Francisco.

The thrust, for us, was to support and augment the testimony and data of the federal and state fish and wildlife agencies. We did this by producing and submitting our own evidence on hydrology, hydrodynamics, biology, and the economic values of the estuary's creatures.

Continued . . .

Bill, it is very important to realize that in the 1986 state court Racanelli decision, and in a key 1987 EPA letter*, the interim standards were judged wholely inadequate. At that point EPA avoided interfering directly because the evidence phase of the long-awaited Bay-Delta Hearing was just beginning.

On November 3, 1988 the Board released its draft water quality control plan. The Board's draft called for 1.6 million acre feet of Delta flows every spring, for striped bass spawning and salmon migration needs, suggested another 600,000 acre feet is essential every year to meet Suisun Marsh's needs to maintain brackish water vegetation, and put a temporary "cap" on the projects' pumped exports that matched the actual exports of 1985. A political firestorm brought on by the Metropolitan Water District of Southern California and the State Water Contractors Association took over the process, quickly changing it beyond recognition.

The Board's Phase I report was formally withdrawn and rejected, except for record purposes, by the Board in January, 1989. The State Board's planning process has been in chaos ever since. The Board argues that flows should not be part of a water quality plan despite the record and the facts. The Board has reorganized the process, and extended the hearing to ensure that flows will not even be discussed until 1993 at the earliest. This is a sham, and a shame.

We believe this extended and tortured process is simply a highly institutionalized , form of delay and denial. There is ample water in California for people and urban industry. That water now goes to crops in the San Joaquin Valley, many of them federally subsidized and which produce toxic wastes from a million acres of lands irrigated there by the public projects after 1968.

The answer to the Delta, Bay and California water problems has been very clear to some of us ever since October 1978, when the State Water Resources Control Board rejected objections from the water lobby and released the D 1485/Water Quality Control Plan for the Sacramento-San Joaquin Delta and Suisun Marsh decision. We've watched that interim plan -- which did not even consider the degradation of the San Joaquin River or the destruction of the San Joaquin Valley -- fail miserably.

This tragedy continues despite a powerful State Court decision in1986 (Racanelli) that instructed the Board how to proceed to remedy the failings of its 1978 decision, and despite the Audubon Mono Lake decision that established a public trust obligation in state law to govern water allocation.

California needs your help. Please don't let the California water development lobby continue to confuse the issue. The federal government has not only the authority that's needed but an obligation to 30 million of its taxpayers. Now is the time you can help us start setting real standards for the protection of beneficial uses of the San Francisco Bay-Delta estuary.

Sincerely,

Bill

William T. Davoren
Executive Director

* Letter of EPA Regional Administrator Judith E. Ayres, June 29, 1987, to W. Don Maughan, Chairman, State Water Resources Control Board, State of California.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, Ca. 94105

08 MAR 1991

Mr. W. Don Maughan
Chairman
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95801

Dear Mr. Maughan:

Thank you for the opportunity to comment on the Final Draft Water Quality Control Plan for Salinity. We have the following general concerns with respect to the Plan:

First, as we have noted in comments on previous drafts, we are concerned that the Plan's limited number of salinity and temperature objectives will not satisfy the conditions of EPA's approval of the 1978 Plan, and will not be sufficient to protect the designated beneficial uses of the estuary.

In discussing the scope of the Plan, the Board notes that it makes "a distinction between thermal loadings and salinity effects caused by man's traditional land use and waste water additions to the waters of the state and those influences directly related to and resulting from the allocation of water for use through water control and diversions." (p. 1-3) This distinction is not recognized by federal water quality standards regulations. To address the objective of the Clean Water Act to restore and maintain the chemical, physical, and biological integrity of the nation's waters, water quality standards should be set to ensure that the biological communities of the estuary, as well as the chemical and physical conditions they require, are protected. This was the objective of the Delta Plan EPA approved with conditions in 1980, and was the basis for the state's commitment to EPA that it would revise its water quality standards if necessary to restore and maintain striped bass populations. We urge the Board, therefore, to redirect its efforts towards adoption of a comprehensive restoration and management plan that is truly protective of the aquatic resources of the estuary.

Second, we remain concerned that several of the recommended objectives are not well supported by scientific evidence. These include the salinity objectives for striped bass and marsh resources, and the temperature objectives for chinook salmon. EPA regulations require that water quality standards be based on sound scientific rationale, and be sufficient to fully protect the designated uses.

Our more specific comments are attached. If you have any questions, please contact me at (415) 744-2125, or your staff may contact Patrick Wright at (415) 744-1997.

Sincerely,

Harry Seraydarian

Harry Seraydarian
Director
Water Management Division

Enclosure

EPA COMMENTS
FINAL DRAFT WATER QUALITY CONTROL PLAN FOR SALINITY

Municipal and Industrial

- We agree with the Board's conclusion that there is no cause to modify the existing salinity objectives for municipal and industrial purposes. The major public health issue regarding salinity has been its effect on the formation of toxic byproducts from disinfection during water treatment. EPA's Office of Drinking Water is in the process of revising drinking water standards for disinfection byproducts and, although new rules will be several years off, it is important to at least maintain salinities at current levels. If the drinking water standards are modified, it would then be appropriate for the Board to consider new objectives as part of its triennial review of standards.

- EPA recognizes, however, that there is substantial evidence that organic compounds from Delta agricultural drains are significant sources of trihalomethane formation potential in drinking water supplies. EPA strongly supports the Board's recommendation for a detailed study of agricultural discharges and the development best management practices to reduce their impacts on Delta water quality and drinking water supplies.

Agriculture - South Delta

- The Plan notes that the Southern Delta agricultural objectives will be implemented in stages. The Program of Implementation, however, does not describe the interim stage that will become effective in three years. The Final Plan should include a table or description of each of the stages and their effective dates.

Salmon - Temperature

- The recommended alternative includes temperatures objectives of 68 degrees from April to June and from September to November to protect fall run chinook salmon, and 66 degrees from January to March to protect the endangered winter run salmon. There is little scientific justification for these objectives in the Plan. The Plan notes that salmon migrations are blocked when temperatures exceed 65 degrees, and that smolts are highly stressed at 68 degrees. EPA cannot approve objectives that are not supported by available scientific evidence.

- We also question whether different temperatures objectives should be set for different salmon runs. There is no evidence cited in the Plan that temperature tolerances differ among salmon. In fact, the Plan notes that DFG believes that the

temperature tolerances of winter run are similar to those of other runs. The Board's recommended objectives are apparently based on the notion that the endangered winter run salmon should receive a "conservative" level of protection (p. 5-22). Given the continuing declines of all natural salmon runs, and the Board's conclusion that high water temperatures are a major problem for smolts emigrating through the Delta, a fully protective objective is appropriate and necessary to ensure that all runs are protected.

- The Plan recommends that the temperature objectives be subject to "controllable factors." This concern is more appropriately addressed in the Plan of Implementation, and should not be made an explicit part of the objective. The objective itself should be based solely on scientific evidence.

- The Plan implies, incorrectly, that the temperature objectives in the Central Valley Basin Plan are specifically tied to controllable factors. In fact, the Basin Plan includes a general policy statement that <u>all</u> water quality objectives are subject to controllable factors. EPA interprets this statement to mean that all measures available to control pollutants and protect designated uses should be considered in the state's implementation plans for these standards.

- There is no explanation or justification given for excluding reservoir releases from "controllable factors." The Plan notes that "increased flows...could have an effect on temperature (p. 5-19)," and that "it will be imperative to evaluate the flexibility of operations to achieve the the coldest temperatures possible in the different water year types (p. 5-24)." Until these studies are completed, and all factors are evaluated, it is premature to eliminate reservoir releases or any other measures from the Board's implementation plan. We strongly urge the Board to take appropriate steps to ensure that these evaluations are completed and control measures are developed to lower water temperatures in the estuary.

<u>Salmon - Dissolved Oxygen</u>

- EPA agrees that new dissolved oxygen objectives are necessary to protect migrating chinook salmon. The Plan does not explain, however, its scientific basis for concluding that the recommended objective should be in effect for only three months, or why different portions of the Delta should be subject to different objectives for dissolved oxygen. These points should be clarified in the Final Plan.

Striped Bass - Antioch and Prisoners Point Objectives

- As we have noted in previous comments, the Draft Plan fails to describe the scientific basis for the 1.5 mmhos/cm EC objective at Antioch to protect striped bass spawning. The Final Plan should describe the evidence that was used to develop this objective as part of the 1978 Plan, and whether any new evidence has been collected that supports its retention.

- The Plan recommends that the objectives at Antioch and Prisoners Point apply until May 31 "or until spawning has ended." EPA cannot support this provision until the Board demonstrates how such a determination can be made accurately given normal fluctuations in water levels and spawning activity.

Striped Bass - Expansion of Spawning Habitat

- EPA disagrees with the Board's decision not to extend the spawning habitat for striped bass upstream to Vernalis. The Board's decision is apparently based on the conclusion that entrainment due to pumping is the most significant factor in the decline of striped bass. (p. 1-14) While we agree that there is strong evidence for this conclusion, it should not be used as a basis for excluding other objectives that would help restore and maintain striped bass. The Plan notes that the Department of Fish and Game has testified that the spawning area provides "minimal suitable conditions," and that bass are prevented from spawning farther up the San Joaquin River because of increased salinity levels. (p. 5-33) Given the continuing decline in bass population levels, it is difficult to understand the Board's rationale for rejecting objectives that would improve habitat conditions in the estuary.

- It has also been suggested that expansion of the spawning habitat may have mixed results depending on water project operations in the area. DFG and others have expressed concern that many eggs and young present in the expanded spawning area may be lost to the pumping plants. This concern merely underscores the importance of developing an integrated set of standards to improve spawning and migration conditions for striped bass and other aquatic resources; it should not prevent the Board from making a commitment to improve habitat conditions in the long term.

Striped Bass - Relaxation Provisions

- We commend the Board for rethinking its approach to relaxation provisions. We agree that use of CVP and SWP deliveries may not be an appropriate surrogate for water year availability. We have been especially concerned in the current drought period that water quality standards necessary to protect aquatic life may be triggered by management decisions of the projects rather than actual water conditions and the needs of

the fisheries during such periods. If relaxation provisions must be included in the Plan, we recommend the approach described in Objective 2E (p. 5-36), in which the objectives are linked to the Sacramento River Basin Index.

- We remain concerned, however, that the current and proposed relaxation provisions may not be adequate to protect striped bass. The Final Draft Plan does not describe the scientific evidence supporting its conclusion that these provisions will be sufficient to protect striped bass spawning for extended dry periods. While we understand the Board's desire to equitably share water supplies in such periods, EPA cannot approve standards that are not supported by scientific evidence.

Suisun Marsh

- For Suisun Marsh, the Plan recommends adoption of the amendments made to D-1485 in 1985. The amendments eliminated the two westernmost stations in Suisun and Montezuma Sloughs and replaced several others. These changes were not made in the Delta Plan, and were never submitted to EPA.

- The Final Draft Plan does not explain the Board's rationale for making these changes in 1985, and provides no information on their environmental impacts. The changes were made without the benefit of a public hearing and environmental review. Thus EPA has no basis on which to approve the proposed revisions.

- As noted in the Appendix, several parties (including BCDC, EDF, and NHI) have testified that the 1985 amendments reduced protection for the unmanaged tidal wetlands of the Marsh. EPA cannot approve any revisions to the 1978 Plan objectives unless the Board demonstrates that the existing uses of the Marsh would be fully protected.

- The Fish and Wildlife Service and others have also raised concerns that the 1978 Plan objectives for Suisun Marsh are not adequate to protect marsh resources, particularly the unmanaged tidal wetlands. As a condition of EPA's approval of the 1978 Plan, the Board agreed to "ensure that necessary studies are performed to provide a basis for additional standards which will supplement the protection derived from Suisun Marsh standards and provide more direct protection for aquatic life in marsh channels." (August 28, 1980 letter from EPA to SWRCB) Thus we concur with the Board's recommendation for additional studies. However, these studies should not be limited to a biological assessment under CESA and ESA of the impacts on endangered species of adopting the Suisun Marsh Preservation Agreement standards, as implied in the Plan of Implementation. The studies should include 1) wetlands outside the legally-defined Suisun Marsh; 2) other alternatives in addition to the SMPA standards; and 3) the full range of species that depend on marsh resources, in addition to endangered species.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, Ca. 94105

**EPA COMMENTS ON THE
SCOPING DOCUMENT FOR THE BAY/DELTA PROCEEDINGS
MARCH 26, 1991**

Good morning Chairman Maughan and members of the Board. My name is Patrick Wright; I am the Bay/Delta Coordinator in the Water Quality Branch at EPA in San Francisco. We appreciate this opportunity to comment on the scoping document for the Bay/Delta proceedings.

Before proceeding with our comments, I would like to reiterate our position that state decisions on levels of protection for designated beneficial uses should be made in the context of the state's water quality plan, rather than in water rights decisions. While we agree that it is appropriate to address the implementation alternatives you have listed in the scoping notice through water rights proceedings, the level of protection alternatives should be addressed in the water quality plan to satisfy the requirements of the federal Clean Water Act. This was the approach the Board took in developing the original workplan for these proceedings and in the 1988 Draft Water Quality Plan, and we believe that it is the only approach that would be consistent with federal requirements.

General Comments

We were pleased to find that the scoping document does draw a clear distinction between alternative levels of protection and implementation measures. It does not describe, however, the process or sequence by which these alternatives will be generated and evaluated. We recommend that the Board split the scoping session into two phases: the first phase should evaluate the additional standards and protection levels necessary to protect the beneficial uses of the estuary, and the second should evaluate the various sets of implementation measures.

This approach would be a major step towards satisfying our concerns, and also would provide focus and direction for the Board's proceedings. We find it difficult to understand how the parties can be asked to submit preferred sets of implementation plans until the Board has determined what levels of protection should be evaluated.

A two-phased approach would also ensure that the level of protection alternatives are based on the best available scientific evidence on the needs of the estuary, rather than on what can be achieved through various physical facilities and other implementation measures. The scoping notice appears to imply that the implementation alternatives will determine what levels of protection are established. For example, the document apparently assumes that new facilities must be built to provide increased protection for the estuary's beneficial uses (Table 4-2). This conclusion, and any discussion of the merits of various implementation alternatives, is premature and inappropriate until the Board has first established level of protection alternatives and the additional standards necessary to achieve them, and until all implementation alternatives are fully evaluated.

Level of Protection Alternatives

EPA recommends that the Board include at least the following two level of protection alternatives in the EIR:

1. "Without project" levels.

You may recall that the long-term objective of the 1978 Plan was to restore and maintain fish and wildlife resources at "recent historical levels," which were defined as the average abundance levels of those resources estimated to have existed between 1922 and 1967. However, the Board concluded that these historical levels could not be maintained with existing project facilities. Thus the Plan established interim water quality standards to maintain fish and wildlife populations (as represented by striped bass) at levels that would have existed in the absence of the state and federal projects. These "without project" levels, estimated at 79 Striped Bass Index Units, were to be maintained until additional project facilities were built.

EPA concurred with this approach, since it was consistent with the mandate of the Clean Water Act to achieve the highest uses that are attainable given the physical, chemical, and biological characteristics of the estuary. However, EPA conditioned its approval of the 1978 Plan upon the state's commitment to revise its standards if necessary to maintain "without project" levels. As part of its analysis of alternatives, the Board should evaluate what revised standards would be needed to fulfill this commitment.

We are not necessarily recommending that the Board retain its current definition of "without project" levels, however. The Board should consider other approaches that would provide a baseline for evaluating recent historical levels of fish and wildlife, such as the 1922-1967 period recommended by the resource agencies. EPA's national

program guidance on biological criteria provides some guidance for developing these types of alternatives, and we would be happy to share those with you and your staff.

EPA also recognizes that it may no longer be appropriate to focus on a single species in developing these and other alternatives. As the scoping notice suggests, the Board should supplement its efforts to protect key species with a greater emphasis on restoring estuarine habitat and migration conditions that would protect a broader range of fish and wildlife communities in the estuary.

2. 1975 levels

This alternative would provide a baseline for evaluating the minimum level of protection that would satisfy state and federal antidegradation requirements. As you know, the federal antidegradation policy establishes a three-tiered approach to maintaining various levels of water quality and uses. The first tier requires that "existing instream water uses and the level of water quality necessary to protect the existing uses must be maintained and protected." (40 CFR 131.12(a)(1)) This part of the test was intended to establish an absolute requirement that uses attained must be maintained.

The regulations define existing uses as those uses actually attained in the water body on or after November 28, 1975 (40 CFR 131.3(e)). Thus we believe that an alternative based on the health, diversity, and abundance of aquatic resources up to this period would be useful to ensure that the antidegradation requirements are met in the proceedings.

We recognize that using a single year may be difficult in developing an alternative, and that there may be a limited amount of information on habitat conditions and the abundance and diversity of species at that time. Nevertheless, we think it would be useful addition to the Board's alternatives analysis, and we would be happy to work with the Board staff on establishing a framework for developing this alternative.

That concludes our comments. We hope to work closely with the Board and staff in this phase of the proceedings, and will provide more specific comments as alternatives are generated. Thank you.

TO: Bill Mumley
Cat (W-3)

CALIFORNIA URBAN WATER AGENCIES
North Coast Water Resources Center
Sacramento, California

April 3, 1991

By

John C. Wise
Deputy Regional Administrator
EPA - Region 9

- I am honored to be invited to this conference. There is no more important subject for California than the integrity of our future drinking water supplies. The five-year drought has certainly captured our attention for short-term solutions to the crisis of water supply. Yet this conference is properly focused on a longer term issue: "PROTECTING DRINKING WATER QUALITY AT THE SOURCE."

- Today I plan to discuss the role of the Federal Government in protecting drinking water supplies. I have taken a major liberty in further focusing that perspective to the role of EPA. I do this because I am more certain that I know what I am talking about; and because EPA is a major player in the drinking water arena.

- EPA's role is much broader than many of you would suppose. In the management of our water resources in the public interest -- a management task that incidentally is shared by EPA, State agencies, and local water utilities -- EPA provides a variety of important functions. Let me briefly describe four of them . . . they will become important later on in my remarks.

  1. EPA establishes national standards that specify a desired quality of water protective of public health and/or protective of aquatic environmental values. The standards of public health are, of course, the MCLs. The standards of environmental values are the water quality criteria, which are subsequently adopted by the State as water quality standards. This standards setting responsibility is best performed by EPA. These standards provide the foundation upon which virtually all of our water resources management actions are based.

2. EPA performs research to deliver the science that undergrids our national standards. We provide the research and development for the technology for water and wastewater treatment. Research and technology transfer are essential roles for the Federal Government.

3. EPA provides the leadership to educate and inform the public about health conditions and environmental values; and has lately taken a much more activist role in communication about the public perception of risk.

4. EPA implements our statutory mandates. This is the function most widely associated with EPA; but in fact, much of the statutory implementation is vested in State governments through various delegation agreements wherein the primary regulatory task is performed by the State, with EPA providing assistance and oversight.

- On this point of our statutory responsibilities, I want to examine the implementation of our two principal statutes: the Clean Water Act (CWA) and the Safe Drinking Water Act (SDWA). We have two somewhat different statutes, and each has a slightly different regulatory approach. I am going to try to show how these two laws intersect (or don't intersect) on the specific issue of source protection.

- The CWA is intended to attain environment values (or water quality standards) for our surface waters. As you know, this process is based upon the States designation (with EPA's subsequent approval) of certain beneficial uses and the assignment of certain water quality objectives that support such beneficial uses. Now, there are several

beneficial uses that may be assigned to surface waters -- aquatic habitat, fish and wildlife, municipal drinking water, agriculture, etc. All of these uses may co-exist in a certain body of water; indeed most of these uses are complementary. Yet there is a very important point here -- pursuant to EPA's regulations, water quality criteria must be protective of the most sensitive beneficial use. And in most cases, we are finding that fish and wildlife uses are more sensitive than drinking water uses.

- One can assert that simply designating a body of water as having a drinking water use is inherently protecting the source of our drinking water supplies. This is true, but the bias toward fish and wildlife, as constructed in the CWA, often obscures this fact.

- The CWA provides that the beneficial uses shall be protected by the regulatory controls on point sources (NPDES), and the management of certain activities that result in non-point discharges. To the extent that these point source and non-point source controls protect the designated beneficial uses, we are, again, inherently protecting the source of our drinking water supplies.

- Now, let me examine the Safe Drinking Water Act.

- The SDWA is intended to protect the public health by specifying the quality of drinking water delivered to the consumers tap. These quality standards are known as MCLs, and are generally attained by vigorous monitoring and treatment by the public water systems. Protection of the source of drinking water and watershed management -- which is a long-held public health dictum -- is included in the Act only as a general policy objective, not as a part of

the regulatory process that follows from the MCLs. The one area where source protection, per se, is specified is in our filtration rule wherein source protection is explicitly considered.

- Source protection for our groundwater supplies is much more specific, and is embodied in such programs as UIC, wellhead protection, sole-source aquifers. And most of our groundwater remedial activities in Superfund, RCRA, or underground storage tanks are based on the premise of restoring and protecting the drinking water source.

- Not withstanding the lack of specific commands of the SDWA for source protection, California water utilities have long-standing surface water source protection/watershed protection programs. These have been very successful, and basically have ensured the high quality drinking water being delivered at nominal cost to California consumers.

- But there are two driving forces that are compelling us to look more carefully at source protection:

  1. The prospect of increasingly more stringent MCLs or treatment techniques, and the consequent dramatic rise in treatment costs; and

  2. The need to consider "unprotected" sources to augment our drinking water supplies.

- Planning for the future delivery of high quality waters, California utilities are facing the grim economics of higher levels of treatment to meet expected more stringent MCLs; and they are increasing examining the comparative cost effectiveness of protecting the source of their supply. Treatment vs. source protection is becoming a relevant issue for all water contaminants. But increasingly we are seeing that it is not an either/or situation.

- The lessons we have learned from the THM experience -- where treatment of unprotected source water creates a new family of contaminants -- has taught us that we must do both. We must increasingly protect the source while enhancing the levels of treatment.

- Well, what is EPA's interest in this highly significant issue?

- At stake is the health of millions of people, and the staggering costs of higher levels of treatment. At stake is the viability and the ecological integrity of our aquatic resources. At stake, is the trade-off between environmental values and public health values.

- To respond to this question, let me return to my original delineation of EPA's roles in water resources management.

  1. Our <u>standards setting function</u> is critical here. As you know, EPA is considering the appropriate level of disinfection by-products in drinking water by specifying a new MCL for THMs and other products of disinfection. We are very mindful of the health risks, the costs, and the benefits of disinfection. The Administrator has directed the Agency to further strengthen our scientific basis for

the health risks, and to closely examine the costs and benefits of any new MCL. Research is now being conducted on disinfection by-products; therefore a final rule is not expected for several years.

2. Our research function is responding to the need to strengthen our scientific basis for the drinking water standards; and to continue to research treatment technologies. The quality of our research on the health effects will be a major determinant of any new drinking water standards; and the treatment technologies we develop will assist in implementing any new standards.

3. Our public education and communication function is being enhanced to seriously engage the public in an informed dialogue about the long-standing safety of our drinking water supplies and the risks that certain chemicals in our drinking waters may present to the public.

4. Our statutory implementation function will increasingly try to balance the individual statutory directions wherein the CWA supports protection of the aquatic ecosystem, and the SDWA supports public health at the consumer's tap. Source protection is the middle ground -- a benefit to both. Source protection must increasingly become the balancing point between ecosystem integrity and health, between fish and people, between health and economics.

- This task will be exceedingly complex and difficult. The issues are at the frontiers of science, engineering, and economics. The issues must be addressed in a responsible way . . . for the very future of California depends on a resolution. EPA has a significant role to play; indeed all of us have a role to play. This conference is an important contribution to that end.

- I thank you for your kind attention.

W3 G
P. Wright
E. Rocom

STATE OF CALIFORNIA

PETE WILSON, *Governor*

STATE LANDS COMMISSION

LEO T. McCARTHY, *Lieutenant Governor*
GRAY DAVIS, *Controller*
THOMAS W. HAYES, *Director of Finance*

EXECUTIVE OFFICE
1807 - 13th Street
Sacramento, CA 95814

CHARLES WARREN
Executive Officer

April 11, 1991

Don Maughn, Chairman
State Water Resources Control Board
901 P Street
P.O. Box 100
Sacramento, California 95812-0100

Attention: Maureen Marche
Administrative Assistant to the Board

Dear Mr. Maughn:

I am writing with response to the upcoming consideration by the Board of proposed drought related actions to temporarily modify salinity standards for the Sacramento-San Joaquin Delta and Suisun Marsh, scheduled for April 15, 1991.

The State Lands Commission has jurisdiction and control of the State's sovereign interests in the beds of tidal and navigable waterways, including the rivers, sloughs, and marshes in the Delta and Suisun areas. These lands are held by the State for the benefit of all its people, subject to the public trust. In this role, and as a Trustee Agency as defined by CEQA, the Commission is responsible for protecting the State's public trust values, including the biological resources in and along our waterways. In this light, we have reviewed the material provided in the Notice of the Board's April 15 hearing, and discussed the proposal with staff at the board and at the Department of Water Resources.

Based on our review and discussions we have a number of concerns we recommend you address before making your decision: (1) What are the effects of the proposal on salmon populations and on biological resources in the western Delta and in Suisun Bay? (2) What are the effects of the proposal on threatened, rare and endangered species? (3) How long are the proposed standards to be in effect? (4) What is anticipated to be the Don

maximum daily salinity level and how long will it likely be sustained? (5) What are the biological consequences of increased salinity in the western Delta and Suisun Bay? (6) What areas might be changed from fresh or brackish to salt water marsh?

We have been unable to locate information to answer these questions. This information is needed for the Board to make an informed decision. It should also be available so that public agencies and members of the public have the opportunity to participate in the Board's hearings in an informed manner.

Please feel free to call Mary Bergen, Staff Marine Biologist, at 324-1028, or Diana Jacobs, Staff Ecologist, at 445-5034, if you have any questions.

Sincerely,

Charles Warren
Executive Officer

cc: James Strock
Secretary of Environmental Protection
Environmental Affairs Agency
P.O. Box 2815
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
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San Francisco, CA 94105

OFFICE OF THE
REGIONAL ADMINISTRATOR

April 12, 1991

MEMORANDUM

SUBJECT: Contingency Talking Points: Lessons Learned from the Drought

FROM: Daniel W. McGovern
Regional Administrator

TO: William K. Reilly
Administrator
(A-100)

THRU: Gordon L. Binder
Chief of Staff
Office of the Administrator
(A-100)

I had an excellent meeting with Doug Wheeler and Mike Mantell yesterday, at which we agreed upon the enclosed talking points, which track many of the points made by Doug in his recent statement, also enclosed. (Under separate cover I will send you some more background reading material on the subject.) Doug and I agreed that a presentation by the state on "Lessons learned from the Drought" should be one of the items on the agenda for your meeting with Governor Wilson.

Another agenda item upon which Doug and I agreed is a presentation on California's model state wetlands program, which the Governor will announce soon as an element of a major natural resources initiative. (I spoke today with Dan Esty to say that I will prepare a brief statement for you commending the Governor.) The announcement may well reference your July meeting, as does the enclosed one-pager prepared by Doug.

A third topic I want to have on the agenda is pollution prevention. I'm trying to arrange for Doug, Jim and me to convene a meeting of our senior managers in June to brain storm about pollution prevention in a cross media context, with the best of our ideas being available for announcement at the conclusion of your meeting with the Governor.

I must say that working with Doug and Mike is an invigorating experience, as you well know.

Enclosures

- Like many crises, the extended drought is also an opportunity insofar as it has occasioned a long-term reassessment of water resources management in the arid West and has forced agricultural, municipal and environmental interests to seek consensus.

- Drought Contingency Planning:

  Although the arid West is characterized by recurring periods of drought, many citizens of the region, including their federal and state officials, seem to suffer from amnesia, triggered by the next cycle of "normal" rainfall. State and federal agencies should develop coordinated contingency plans to ensure, for example, that reservoir storage remains sufficient for an extended drought.

- Fish and Wildlife:

  The cumulative effects of the drought have taken a tremendous toll on fish and wildlife communities in the West; many populations are at record lows. Strong recovery plans must be implemented to ensure their long-term survival; to be successful, the recovery plans will require guaranteed allocations of water.

  Instream uses have generally not received the same level of protection as other beneficial uses; this tends to be particularly true during droughts. State and federal water systems should accord a higher degree of protection for fisheries, riparian corridors and wetlands. Moreover, instream uses should be broadly construed to include the adjacent riparian zones, contiguous wetlands and refuges, as well as incidental wildlife habitats, such as marshes created by agricultural drainage.

- **Water Quality and Quantity:**

  The drought has brought into bold relief the relationship between water quantity and water quality in arid regions. State water allocation decisions directly effect the quality of drinking water supplies and the health of aquatic communities.

  The drought has also highlighted the need to coordinate management of groundwater and surface water supplies. Coordination and conjunctive use of federal and state projects should be encouraged.

- **Conservation and Reclamation:**

  The drought has necessitated the establishment of aggressive conservation programs. However, conservation must be more than a short-term response to an acute drought; rather, the West must develop a conservation ethic to reduce water usage to sustainable levels, particularly in light of the continued explosive growth in the region.

  Reclamation can provide a safe, economical and environmentally sound method of augmenting water supplies, particularly for irrigation and landscaping. Legal and institutional barriers to reclamation should be lowered.

- **Market Approaches:**

  California's success in creating a water bank demonstrates that water marketing and other incentive-based approaches can be important tools in making supplies available to areas of critical need. Water marketing, for example, can provide compensation to farmers for

voluntarily retiring marginal land, which may incidentally reduce salt-loading, and can reduce the pressure to develop water supplies which are critical for fish and wildlife habitat.

Provision must be made in any marketing system, however, for fish and wildlife and for the ripple effects on agricultural communities of taking land out of production. A percentage of the water transferred could be set aside for fish and wildlife, and a percentage of the money received by the farmer could be set aside to compensate for second effects on the agricultural community.

MEMORANDUM CH2MHILL

TO: Ed Means/MWDSC
David Spath/DOHS
Patrick Wright/USEPA Region 9
Jerry Johns/SWRCB

COPIES: Ken Miller/CH2M HILL

FROM: John M. Gaston

DATE: April 26, 1991

SUBJECT: NDWAC Disinfection By-Product Briefing-April 8-9, 1991

PROJECT: LAO 22643.K0.00

The Health, Science and Standards Subcommittee of the USEPA National Drinking Water Advisory Council met on April 8-9, 1991 in Miami, FL, and was briefed on a wide variety of pending drinking water standard issues. Of special interest to the group was the briefing on the work being done on Disinfection By-Products. The briefing was conducted by Ms. Jennifer Orme, USEPA Office of Drinking Water and Ground Water and Dr. Verne Ray, Science Advisory Board. A copy of one of the "Fact Sheets" is attached. None of this material is proprietary at this time.

The following is a summary of the material from both the fact sheet and the briefing and describes the direction that the Agency "seems" to be headed at this time.

DISINFECTANTS

Chlorine: The issue of carcinogenicity is still unclear. Data on reproductive and immunological effects will be reviewed, and the SAB may be asked to review the USEPA criteria document in Summer 1991. My interpretation of this material and the briefing is that the most likely action will be to propose a fairly high MCL for residual chlorine in 1993; initial indications are that this should not cause too much of a problem, especially when viewed in light of THM production and the reluctance of many utilities to use high doses of free chlorine.

Chloramine: This compound has a similar toxicological pattern to chlorine, and action by SAB may also be requested in Summer 1991. My interpretation of this information and the briefing is that a similar high MCL may be proposed. This may still, however, cause problems for some water utilities that utilize high dosages of Chloramine for residual disinfection and biofilm control. The main uncertainty relates to the fact that Chloramine may produce Cyanogen Chloride, and that compound may be regulated at a fairly low level. Determination of the acceptability of Chloramine may be on a case-by-case basis depending upon the production of Cyanogen

Chloride. Earlier information reported by the National Academy of Sciences[1] indicated a "Suggested-No-Adverse-Response-Level" (SNARL) for monochloramine as follows:

- Adult Exposure: 0.581 mg/l
- Child Exposure: 0.166 mg/l

New information is due from the National Toxicology Program (NTP) which may change this estimate.

Chlorine Dioxide, Chlorate and Chlorite: Data is available in animals as to health effects, and this, along with other indications, would lead one to believe that these compounds will be closely regulated. Note the hand written sentence in the fact sheet which was translated by Jennifer Orme to read..."Preliminary analysis indicates that the risk could preclude its use as a residual." The Agency has issued guidance limiting the residuals of the by-products (chlorate and chlorite), and it is doubtful that they will allow measurable residuals in the future. My interpretation of this is that if Chlorine Dioxide is used no residuals will be allowed, and yet another disinfectant will have to be applied to maintain a distribution system residual. The material in "Drinking Water and Health[2] indicates SNARL's for the two risk groups (Adults and children) at 0.21 mg/l and 0.06 mg/l.

Ozone: It is very unlikely that a residual concentration will be prescribed for Ozone since it breaks down in water and a residual generally cannot be measured. All efforts with regard to Ozone are being directed toward the production of by-products, and Bromate may be the most troublesome of these.

DISINFECTION BY-PRODUCTS

Trihalomethanes: Most of the health effects work has been done on this group of compounds. The original MCL for the trihalomethanes was based on the toxicity of chloroform, and the information on the brominated species is now available. It is anticipated that the recalculation of the health effects data will result in separate MCL's for the four THM's. Preliminary indications are that the brominated species are more toxic and that Bromodichloromethane has

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[1]Drinking Water and Health-Disinfectants and Disinfection By-Products, Volume 7;1987;90-99.

[2] Ibid; 83-90

the lowest excess cancer risk. The SAB agrees with EPA that Bromoform is a Group B2 carcinogen. My interpretation of this is that individual MCL's will be set for the four THM's (both EPA and SAB have stated that this is their recommendation), and that the brominated species will drive the eventual MCL. It appears that the new mutagenicity studies for chloroform are largely negative or unequivocal, and my estimate is that if chloroform is the only species present the new MCL may be fairly high (50 ug/l?), but that concern regarding the brominated forms will cause the eventual standard for those compounds to be fairly low. The material in "Drinking Water and Health"[3] indicates the following risk levels for Chloroform and Dibromochloromethane:

- To have an excess cancer risk of 1:1,000,000 assuming consumption of 2 liters of water per day for 70 years.
- Chloroform: four studies-concentration range from 0.6 to 10 ug/l at the 95% Confidence level; from 0.7 to 3,125 ug/l Estimated Risk.
- Dibromochloromethane: one study-concentration 0.6 ug/l at the 95% Confidence level; 1 ug/l Estimated Risk.

This will be the toughest call for the Agency because of the interrelationships with the Coliform Rule and the Surface Water Treatment Rule, but the fact that most water utilities in this country can achieve a TTHM MCL at or below 50 ug/l without significant brominated forms seems to point to an MCL in that neighborhood.

Halo-Acetic Acids: These are the next most frequently occurring DBP's behind the THM's, and the SAB will review some of the issues in Spring 1991. Previous work reported in "Drinking Water and Health"[4] indicate that NAS recommends SNARL's at the following levels:

- Dichloroacetic Acid: Adult=0.42 ug/l; Child=0.12 ug/l
- Trichloroacetic Acid: Adult=0.175 ug/l; Child=0.05 ug/l

My interpretation of this is that the Agency probably will propose an MCL for the combined group of Halo-Acetic Acids similar to the way that an MCL was proposed for the combined THM's in 1979. Not enough is known about all the other forms, and they state that they

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[3] Ibid; 111-133.

[4] Ibid; 133-143.

will..."Conduct research on the potential health risks of brominated acetic acids."

Chloral Hydrate: Preliminary results from a cancer bioassay in rodents suggest a potential for carcinogenicity. The Agency has determined a reference dose of 0.0016 mg/kg/d which would translate into a MCLG of 0.56 ug/l or 0.056 ug/l depending upon the safety factor employed. Occurrence data and more work will have to be done to determine the direction of this standard.

Cyanogen Chloride: A previous reference to the correlation with chloramine was noted, and this compound is in about the same position as Chloral Hydrate. The SAB will be asked to evaluate this compound in Spring 1991.

Bromate, Chloropicrin, and Haloacetonitriles: Data is limited for all three of these. The Agency indicates that Bromate..."may have some carcinogenic potential based on the incidence of kidney tumors"..., and this may correlate with preliminary information indicating a positive cancer finding in work done for the AWWA Research Foundation.

More information is forthcoming from the SAB in mid-1991, and the Agency may be in a position to confirm some of these preliminary findings in early 1992. Because of the recent reorganization in EPA (Washington) Office of Water some of the work may be delayed until the new duties and personnel shake out.

Distributed 4/19/91 @ Miami-ASWA

FACT SHEET - HEALTH EFFECTS

DISINFECTANTS AND DISINFECTION BY - PRODUCTS

April 1991

The Environmental Protection Agency (EPA) is in the process of assessing the potential health risks of several drinking water disinfectants and their by-products in anticipation of proposing regulations in June, 1993. The following is a summary of the health assessment of these compounds and steps that need to be followed prior to proposal.

Background

The EPA is responsible for the protection of public water supplies as mandated by the Safe Drinking Water Act (SDWA) of 1974, amended in 1986. The SDWA requires EPA to regulate those contaminants that may pose an adverse human health risk and are known or anticipated to occur in drinking water. For each contaminant considered for regulation, the EPA determines a Maximum Contaminant Level Goal (MCLG) and a Maximum Contaminant Level (MCL) or, if monitoring is not feasible, a treatment technique.

The MCLG is a nonenforceable health-based goal that is considered protective of human health over a lifetime exposure and which provides an adequate margin of safety. The EPA has established a three-category approach for setting MCLGs. Factors such as weight of evidence for carcinogenicity, cancer potency, exposure, pharmacokinetics and mechanism of action influence which category a contaminant is placed. For category I contaminants, there is strong evidence of carcinogenicity to humans from a drinking water source, thus the MCLG is set at zero. For category II contaminants, there is limited evidence of a carcinogenic risk to humans exposed to the contaminant in drinking water. The MCLG determined for this group is based on the Reference dose (RfD) approach (described below) with an additional uncertainty factor applied to account for possible carcinogenicity. If adequate data are not available to calculate an RfD, then the MCLG is set using cancer risk information. For contaminants with inadequate or no evidence of carcinogenicity to humans via drinking water, the MCLG is determined from the RfD approach.

The RfD represents a daily oral exposure to a contaminant that would not result in an adverse health effect in the human population over a lifetime of exposure. The RfD incorporates a margin of safety and protects sensitive members of the population. The RfD is calculated from a no- or lowest observed adverse effect level identified from an appropriate study in humans or animals, and divided by an uncertainty factor. The uncertainty factor accounts for differences in response to toxicity within the human population and between humans and

adult drinking 2 liters of water per day as an average over a lifetime. The resulting value is called the Drinking Water Equivalent Level (DWEL). The DWEL assumes that all of one's exposure comes from a drinking water source. However, exposure to a given contaminant often comes from several sources, thus the DWEL is adjusted to reflect a known or assumed level of exposure to the contaminant from a drinking water source. This value represents the MCLG.

The MCL is then set as close to the MCLG as feasible, based on the ability of different technologies to measure and remove the contaminant from water. Often the MCL will equal the MCLG. In cases where the MCLG is set at zero, the MCL will usually fall in an excess cancer risk range of one in ten thousand to one in one million (10^{-4} to 10^{-6}).

Summary of Health Information

Disinfectants:

Chlorine. Most commonly used disinfectant. It is a strong oxidizing agent and reacts with water to form hypochlorous acid and hypochlorite. In addition, chlorine reacts with organic matter in the water (e.g., humic and fulvic acids) to form a number of oxidation by-products.

Health effects: Toxic effects observed in animal studies with chlorine or hypochlorite include decreased organ and body weights, and changes in serum enzymes. These effects were observed in animals exposed to much higher levels of chlorine than would be found in drinking water. Early reports indicated effects on serum cholesterol, these findings were not confirmed in follow-up studies by the same authors. A two-year bioassay with chlorinated water in rodents reported a significant increased incidence of mononuclear cell leukemia in female rats exposed only to the mid-dose. The incidence does not appear to be dose-related for this lesion.

Epidemiology studies have associated chlorinated water with an increased risk of bladder, colon and rectal cancer in persons exposed for 40 years or more. The International Agency for Research on Cancer (IARC), however, recently determined that this data was inadequate to classify the carcinogenicity potential of chlorinated drinking water to humans. They recommended further research to clarify this issue.

Risk Assessment: The EPA has not determined a Reference Dose for noncancer health effects or cancer assessment for chlorine at this time. Health effects do not appear to be associated with typical residual chlorine levels in public water supplies.

Future steps: Review new data on reproductive and immunological effects. Determine Reference dose for chlorine in Spring, 1991; initiate review of carcinogenicity of chlorinated water in Summer, 1991. Science Advisory Board review possibly in June, 1991.

Chloramine. Chloramines are a common alternative to chlorine for disinfection. Chloramines are not as strong an oxidizer and are less reactive than chlorine in water. They do, however, react with organic matter in water to form oxidation by-products. The level of by-products formed is less than that produced with chlorine.

Health Effects: The health effects associated with high levels of chloramine given to animals are changes in blood chemistry parameters and decreases in organ and body weights. A two-year drinking water bioassay with chloramine in rodents reported a dose-related increase in the incidence of mononuclear cell leukemia in female rats.

In humans, exposure to high levels of chloramines may result in some skin, eye and lung irritations. No adverse health effects were noted in persons drinking chloraminated water at levels typically used for disinfection.

Risk Assessment: The EPA has not determined a Reference dose for noncancer health effects or cancer assessment for chloramines at this time. Health effects do not appear to be associated with levels of residual chloramine typically found in drinking water.

Future steps: Review new data on immunological effects.Determine RfD for chloramines in Spring, 1991; initiate review of carcinogenicity of chloraminated water in summer, 1991; Science Advisory Board review possibly in June, 1991.

Chlorine Dioxide, Chlorite and Chlorate: Chlorine dioxide is a strong oxidizing agent that has been used with chlorine to disinfect drinking water and control phenol-related tastes and odors in the water. Use of chlorine dioxide as a disinfectant does not result in the the formation of oxidation by-products found with use of chlorine. Chlorine dioxide rapidly breaks down to chlorite and to some extent chlorate and chloride.

Health Effects: The health effects animals exposured to high levels chlorine dioxide and its byproducts, chlorite and chlorate, include damage to red blood cells and effects on the thyroid. Delayed neurodevelopment has also been reported young rats whose mothers were given high levels of chlorine dioxide in their water.

No health effects have been observed in healthy humans drinking water that has been disinfected with chlorine dioxide. However, persons deficient in a liver enzyme, glucose 6 phosphate dehydrogenase, may be at risk of developing anemia if they drink water treated with chlorine dioxide for a long period of time.

Risk assessment: The EPA has not determined a reference dose or cancer assessment for chlorine dioxide, chlorite and chlorate at this time. The EPA published guidance in 1979, recommending that total residual oxidants not exceed 1 ppm in water when chlorine dioxide is used. EPA will develop separate risk assessments for chlorine dioxide, chlorite and chlorate that will likely be lower than the 1 ppm guidance level. Preliminary analysis indicates that the risk could preclude its use as a residual.

Future steps: Determine and verify Reference doses for each chemical in Spring, 1991. Science Advisory Board review to be determined.

Ozone: Ozone is another disinfectant for drinking water that is commonly used in Europe with increasing use in the US. It breaks down rapidly in water so that a residual is not maintained. Thus, it may be used in conjunction with another disinfectant such as chlorine or chloramine.

Health effects: Very little health effects information is available on ozone. Ozone has been tested for mutagenic activity. The results have generally been negative.

Risk assessment: The EPA has not determined a Reference dose or cancer assessment for ozone. It is unlikely that EPA will regulate ozone since a residual concentration is not maintained in water.

Future steps: Initiate research on the potential health effects to humans consuming ozonated drinking water.

<u>Disinfection By-products:</u>

Trihalomethanes: The trihalomethanes (THMs) consisting of chloroform, bromoform, bromodichloromethane and dibromochloromethane are the most commonly occurring by-products of disinfection. They result from the reaction of chlorine or chloramines with organic matter in the water.

Health Effects: Animals studies have shown that exposure to high levels of THMs can effect liver and kidney function. Long-term exposure to high levels of the individual THMs has resulted liver kidney and intestinal tumors in rodents.

Risk Assessments: The EPA has determined Reference doses of 0.01 mg/kg/d for chloroform and 0.02 mg/kg/d for bromoform, bromodichloromethane and dibromochloromethane. The EPA has also determined that there is sufficient evidence of carcinogenicity in animals to place chloroform, bromodichloromethane and bromoform in Group B2: probable human carcinogen Dibromochloromethane has been placed in Group C: possible human carcinogen based on limited evidence of carcinogenicity in animals. The estimated excess cancer risk range is:

Dibromochloromethane has benn placed in Group C: possible human carcinogen based on limited evidence of carcinogenicity in animals. The estimated excess cancer risk range is:

Chemical	Risk Range 10-4 to 10-6
Chloroform	0.6 to 0.006 ppm
Bromodichloromethane	0.03 to 0.0003 ppm
Bromoform	0.4 to 0.004 ppm

The EPA established an MCL for total THMs in 1979 of 0.1 ppm. This level was based on the toxicity of chloroform in the absence of data for the brominated THMs. With the availablity of information for all four compounds, the current MCL may be revised to determine a separate MCL for each compound.

Future steps: Reevaluate the cancer risk assessment for chloroform to consider new information on pharmacokinetics. Reconsider the RfDs for the brominated THMs based on the Science Advisory Board's recommendations.

Halo-Acetic Acids: The halo-acetic acids, consisting of mono- (MCA), di- (DCA) and trichloroacetic acid (TCA) and various brominated forms are also commonly occurring by-products of disinfection. DCA has also been used therapeutically to control abnormal metabolism in humans.

Health Effects: Health effects data for the brominated acetic acids and MCA are limited. Effects noted in animals exposed to high levels of DCA include metabolic changes, neurological effects such as muscle weakness, numbness and tremors and liver tumors in rodents following long-term exposure to very high levels. Studies in animals exposed to high levels of TCA indicated changes in enzyme levels and body weight gain. Limited evidence of liver tumors were also observed in rodents given very high levels of TCA in drinking water for 2 years.

Numbness and tingling sensations were reported in patients given therapeutic doses of DCA. These symptoms disappeared when treatment was discontinued.

Risk assessment: EPA has not determined a Reference dose or cancer assessment for the chlorinated acetic acids at this time.

Future steps: Conduct research on the potential health risks of brominated acetic acids. Determine RfDs for DCA and TCA in Spring, 1991. Evaluate new data for MCA. Initiate evaluation of carcinogenicity for DCA and TCA particularly in reference to a possible threshold mechanism. The Science Advisory Board will review cancer and neurotoxicity issues for DCA and TCA in April, 1991.

Low Occurring Disinfection By-products: There are several other by-products produced from disinfection that occur in lesser frequency and concentration than the THMs or halo-acetic acids. This group includes bromate, chloropicrin, chloral hydrate, cyanogen chloride and the haloacetonitriles.

Chloral hydrate, also known as trichloroacetaldehyde monohydrate, has been used as a seditive in humans. Effects in animals given high doses has produced changes in liver size and weight. Preliminary results from a cancer bioassay in rodents suggest some potential for carcinogenicity. The EPA has determined a Refernece dose of 0.0016 mg/kg/d for chloral hydrate. Further evaluation of the cancer data will be initiated upon publication of the results.

Cyanogen chloride is an unstable by-product of chloamination. It has also been used as a nerve gas agent, particularly in WWI. The data base for cyanogen chloride dates back to the 1920's and is inadequate to use in determining a risk assessment. The EPA has determined a Reference dose for cyanogen chloride based on the toxicity of hydrogen cyanide resulting in a value of 0.02 mg/kg/d. The EPA will reevaluate the RfD based on the recommendations to be made by the Science Advisory Board in April, 1991.

EPA has not determined Reference doses or cancer assessments for bromate, chloropicrin or the haloacetonitriles at this time. A review of the health data suggest that bromate may have some carcinogenic potential based on the incidence of kidney tumors in rats given high levels of bromate in drinking water for two years. The haloacetonitriles have been shown to produce effects in rat fetuses whose mothers were given water containing high levels of the compounds. EPA is presently evaluating new information on chloropicrin.

[Summary table to be added]